

BIG COMPUTER GAMES

12 Challenging Games to Play on Your Home Computer.
All in Basic with program listing and sample run.
Edited by David H. Ahl.



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Creative Computing Press
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Big Computer Games

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Dedicated to Ken Uston, a good friend and gambler extraordinaire who, to this day, claims he would have beaten me for Gambler of the Year (1983) if only he had a better joystick.

About the Author

David H. Ahl has a BEE from Cornell University, MBA from Carnegie-Mellon University and has done further work in educational psychology at the University of Pittsburgh.

He served in the Army Security Agency, was a consultant with Management Science Associates and a senior research fellow with Educational Systems Research Institute.

In early 1970, he joined Digital Equipment Corporation. As education product line manager, he formulated the concept of an educational computer system consisting of hardware, software and courseware and helped guide DEC into a leading position in the education market.

Mr. Ahl joined AT&T in 1974 as education marketing manager and was later promoted to manager of marketing communications for the unit later to become American Bell. Concurrent with this move, he started *Creative Computing* as a hobby in late 1974. It was the first personal computing magazine in the world.

As *Creative Computing* grew, Mr. Ahl left AT&T in 1978 to devote full time to it. *Creative Computing* magazine today is Number 1 in software and applications.

Mr. Ahl is the author or editor of 20 books and over 200 articles about the use of computers. He is a frequent lecturer and workshop leader at educational and professional conferences.

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Preface

It seems that my games books come out at about five-year intervals. The first version of *Basic Computer Games* was published in July 1973. *More Basic Computer Games* made its debut in June 1978. And here we are some five years later with *Big Computer Games*. So what is significant about that? Not much at all, except that it gives you an historical perspective on computer games, specifically ones written in Basic.

Years ago, most games in Basic were very short, reflecting of course, the limited memory available in most computers. Indeed, my first lunar lander program was written to fit in a computer with 4K of memory in which the Basic interpreter occupied nearly 3.5K. Thus the program was less than 500 bytes long. In the first book I edited, *Basic Computer Games*, nearly one-half of the 100 programs were less than 40 lines long. Some of them were mighty interesting programs, although there wasn't much room for the rules, error checking, or user-friendly features.

On the other hand, years ago people who had access to large timesharing systems were writing long, elaborate programs with all sorts of extended features. Unfortunately, these weren't of much use to early microcomputer owners who felt lucky to be able to afford 4K, or maybe 8K, if they splurged.

Times have changed. Today, memory is cheap. When I talk to kids at schools, they can't imagine a computer with less than 48K, and another two to four times that on disk. Consequently, although many of the programs in this book were originally developed on large timesharing systems, today they will run on the average microcomputer. Actually, most of them don't require much more than 16K (some timesharing systems limited users to a 16K partition). Of course, some of the programs in this book were initially developed on microcomputers.

So, as a result of the relentless march of technology, today we are able to run programs on a small computer that ten years ago required a \$100,000 system. Furthermore, many of the programs being written today on small computers are more elaborate than those written on larger machines.

I wish I could say that these advances in technology have led to higher quality programming; they have in some cases, but certainly not across the board. *Valdicos* and *Lotus 1-2-3* are certainly masterful pieces of code; most of the programs in this book are not. Some of the programs almost cry out for improvement, but for that you must first get them into your computer.

**The
Games**





Cribbage

The computer game of Cribbage was written by Sheppard Yarrow in IBM Basic for a 100/100. It appeared in this form in *Creative Computing*, May 1979. For this book, it was converted to Microsoft Basic by Steve Williams.

If you happen to be a cribbage fanatic, you know the frustration of wanting to play but not being able to find an opponent. Well, never again; Cribbage will always be willing to accept the challenge. If you don't happen to be a cribbage player, this program provides a good way to learn the game.

Rules of Cribbage

Cribbage is a two-player game. A regular deck of cards is used. The cards are used chiefly as numbers; the suits have practically no role in the game. Each player receives six cards on the deal. From his hand, each player selects two cards for discard; these four cards are placed face down and are known as the crib, an extra hand which belongs to the dealer.

After the crib is laid down, the nonddealer cuts the rest of the pack and the dealer turns up the top card of the lower portion. This card is the starter or up-card. If it is a jack, the dealer scores 2 points. This operation is done automatically by the program.

In normal play of the game, a cribbage board is used to keep track of the scores, a function performed

by the computer in this game. The game is won when one player has traversed twice around the board (121 or more points).

The nonddealer begins by playing any card; face cards and the ten have a point value of 10. The dealer then plays a card and announces the sum of the two cards thus far played. Play continues alternately, the new sum being announced each time, until one player is unable to play without carrying the total over 31. He must then say "go" and his opponent pegs (or scores) for go. The player who called the go must lead again for a new series of plays. The count begins again at zero, and again the total must not be carried beyond 31.

After go is called, the other player must play additional cards if he can do so without exceeding 31. Thus, the same player may play two or three times in succession. For making exactly 31, the player scores 2; for a go at less than 31, he scores 1. Playing the last card of the eight in play counts 1 point, or 2 if it makes the sum 31.

Scoring During Play

In addition to the points for go's and playing the last card, other points are awarded as follows:

Fifteen. For making the sum 15, score 2.

Four. For playing a card of the same rank as just played by your opponent (i.e., king, king, or 8, 8).

score 2. Playing the third card of a rank scores 6, and the fourth scores 12.

Runs. For playing a card in sequence with two or more just played, score the number of cards in the run (or sequence). The cards need not be played in sequential order to score for a run, for example, if the cards played are 5, 7, 6, the last player scores 3 for the run.

Scoring A Hand

In cribbage, scoring a hand is known as showing. The hands are shown in order: nondealer, dealer, and crib. The starter (for up card) is treated as a fifth card belonging to each of these three hands. The combinations that score are as follows:

Flushes. For each combination of cards that total 15, score 2. Thus, a hand with 9, 8, 7, 7, and 6 has three combinations of 15: 9 and 6, 8 with one 7, and 8 with the other 7.

Multiples. For a pair, score 2; for three of a kind, score 6; for four of a kind, score 12.

Runs. For each combination that makes a run of three or more, score the number of cards in the run. In the hand, 9, 8, 7, 7, 6, there are 8 points for two runs of four, using one 7 in each run.

Flush. For four cards in the hand (excluding the up card) of the same suit, score 4, or 5 if the up card is also the same suit. For crib and up card of the same suit, score 3; there is no score for a four-flush in the crib alone.

His Nobs. For a jack in the hand of the same suit as the up card, score 1.

Muggins

If a player overlooks a score to which he is entitled, either in playing or showing, his opponent may call "Muggins" and take the score himself. Since the computer keeps playing scores automatically and always counts his own hand correctly, the only time that Muggins is used in this game is against you when you score your hand or the crib hand.

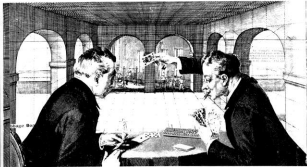
Specifics of the Computer Version

To the question, "Cut for deal?" you should enter a number between 1 and 52 which is where the shuffled deck will be cut. The cards in your hand are numbered 1 to 6; any entries representing cards should use these numbers, not the value(s) of the card. If you must say go, simply type it instead of a card number on your turn.

The computer will shuffle, deal, generate the starter (up card), keep track of the running scores, and credit all points earned during play. It will not let you exceed 31, but it doesn't check to see if you could have played a card if you respond with go. It is up to you to score your hand and the computer will call Muggins without mercy if you have counted incorrectly.

The program uses a very simple playing strategy of keeping the cards that yield the most points or playing the card which will score the most points. There are much more involved strategies of play that can be found in any good book of card games.

Good playing!



Cribbage

```
10 REM *****
20 REM * CRIBBAGE *
30 REM * in Microsoft BASIC *
40 REM *****
50 CLEAR:GOTO 1000
60 PRINT "***** CRIBBAGE *****"
70 PRINT "Enter a number from 1 to 5000:":
80 IF HT=0 OR HT=1 THEN 70
90 FOR X=1 TO HT:GOTO(11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50)
100 DIM X(52),Y(52),Z(14),D(14),E(14),F(14)
110 DIM W(52),V(52),U(14),S(14),R(14),Q(14)
120 DIM T(14),P(14),O(14),N(14),M(14)
130 FOR X=1 TO 13:FOR Y=1 TO 7
140 READ W(X),Y:PRINT Y:GOTO 150
150 FOR X=1 TO 13:FOR Y=1 TO 7
160 READ X(Y),Y:PRINT Y:GOTO 170
170 FOR X=1 TO 4:FOR Y=1 TO 3
180 READ W(X),Y:PRINT Y:GOTO 190
190 FOR X=1 TO 4:READ X(Y):GOTO 200
200 FOR X=1 TO 4:READ W(X):GOTO 210
210 FOR X=1 TO 13
220 READ C(X)
230 C(1)=LEFT$(C$,4)*" of Spades "
240 C(2)=LEFT$(C$,4)*" of Diamonds "
250 C(3)=LEFT$(C$,4)*" of Hearts "
260 C(4)=LEFT$(C$,4)*" of Clubs "
270 NEXT X
280 PRINT:PRINT
290 G=0:G2=0
300 REM ## SHUFFLE DECK & CUT FOR DEAL
310 GOSUB 4000
320 GOSUB 4020
330 REM ## SHUFFLE AND DEAL
340 GOSUB 4080
350 GOSUB 4090
360 REM ## FIND BEST 4 CARDS
370 GOSUB 4040
380 REM ## DISCARD
390 I=Y(1),J
400 I=Y(2),J
410 PRINT
420 PRINT "Your discards:"
430 INPUT I,J
440 IF I=13 THEN 460
450 IF I=7 THEN 470
460 PRINT "Invalid input":GOTO 420
470 IF INT(I/13)<13 THEN 460
480 IF I=13 THEN 460
490 IF I=7 THEN 460
500 IF I=6 THEN 460
510 IF I=5 THEN 460
520 REM ## CRIB
530 FOR J=1 TO 4
540 C(1),J=Y(1),J
550 C(2),J=Y(2),J
560 C(3),J=Y(3),J
570 C(4),J=Y(4),J
580 NEXT J
590 REM ## GENERATE THE UPCARD
600 GOSUB 4030
610 REM ## PLAY OF THE HAND
620 GOSUB 1000
630 IF R=0 THEN 670
640 PRINT "You score first "
650 S1=1
660 GOTO 690
670 PRINT "I score first "
680 S1=2
690 GOTO 1160
700 PRINT "The crib cards are:"
710 PRINT
720 FOR J=1 TO 4
730 PRINT D(4),J
740 NEXT J
750 FOR J=1 TO 4:FOR K=1 TO 4
760 W(1),J=H(1),J
770 NEXT J:GOTO 1
780 C=0
790 W(5),4=79
800 GOSUB 4030
810 ON X(1) GOTO 820,830,840
820 PRINT
830 PRINT P1"points"
840 S=51+P
850 IF S>121 THEN 1420
860 GOTO 1370
870 X1=3
880 GOTO 1010
890 X=1
900 FOR I=1 TO 4
910 IF I=13 THEN 970
920 IF I=7 THEN 970
930 FOR J=1 TO 4
940 W(X),J=Y(X),J
950 NEXT J
960 X=X+1
970 NEXT I
980 W(5),4=79
990 C=0
1000 GOSUB 4030
1010 PRINT "How many points?"
1020 INPUT P
1030 C=P+P
1040 IF C=0 THEN 1070
1050 PRINT "Toss with that hand"
1060 GOTO 1020
1070 S2=S2+P
1080 IF S2=121 THEN 1440
1090 IF S=0 THEN 1150
1100 S1=S1+D
1110 PRINT
1120 PRINT "Sipping for":D1"points"
1130 PRINT
1140 IF S1=121 THEN 1420
1150 ON X(1) GOTO 1160,700,1370
1160 FOR K=1 TO 4
1170 L=V(1),K
1180 FOR J=1 TO 4
1190 W(X),J=Y(X),J
1200 NEXT J
1210 NEXT K
1220 PRINT "My cards are"
1230 PRINT
1240 FOR K=1 TO 4
1250 L=H(X),K
1260 PRINT C=L
1270 NEXT K
1280 W(5),4=79
1290 C=0
1300 GOSUB 4030
1310 S1=51+P
1320 IF S1>121 THEN 1420
1330 PRINT
1340 PRINT P1"points"
1350 PRINT
1360 PRINT P2"points"
1370 GOTO 130
1380 GOTO 130
1390 PRINT "I win":S1"to":S2
1400 PRINT
1410 PRINT "I have":S1"points."
1420 PRINT "You have":S2"points."
1430 PRINT
1440 GOTO 130
1450 STOP
1460 PRINT
1470 PRINT "You win":S2"to":S1
1480 PRINT
1490 STOP
1500 REM ##
1510 REM ## PLAY OF THE HAND
1520 REM ##
1530 R=0:R5=0:D=0:G2=0:G=0
1540 IF R=0 THEN 1560
1550 IF Y(4)=4 THEN 1580
1560 IF R5=4 THEN 1570
```

Cribbage

```
1570 GOTO 1940
1580 PRINT "Your play ";
1590 INPUT C$
1600 IF C$="go" OR C$="GO" THEN 1940
1610 FOR C# = 1 TO 4
1620 IF C#="C" THEN 1590
1630 NEXT C#
1640 PRINT "Invalid play"
1650 GOTO 1590
1660 IF C#="3" THEN 1690
1670 IF C#="4" THEN 1695
1680 IF C#="0" THEN 1720
1690 FOR J# = 1 TO Y#
1700 IF J#="3" THEN C# THEN 1690
1710 NEXT J#
1720 IF B#+(C#*20)+1 THEN 1920
1730 B#:=B#+C#*21
1740 Y#:=Y#+1
1750 I#:=I#+Y#+C#
1760 C#:=1
1770 J#:=J#+C#*41
1780 GOSUB 3020
1790 PRINT "You played the ";C#;"(Y";C#,1)
1800 PRINT "Sum =";PRINT USING"###";B#
1810 PRINT " Points =";PRINT USING"####";P#
1820 P#:=1
1830 B#:=B#+P#
1840 IF B#>121 THEN 1840
1850 IF B#>131 THEN 1840
1860 F#:=C#*B#*B#
1870 GOTO 1940
1880 PRINT "You discarded that card."
1890 GOTO 1890
1900 PRINT "Already played"
1910 GOTO 1890
1920 PRINT "That totals more than 31"
1930 GOTO 1890
1940 IF B#>4 THEN 2110
1950 IF Y#>4 THEN 2270
1960 IF C#>"go" AND C#>"GO" THEN 1890
1970 PRINT
1980 IF P#>0 THEN 2050
1990 PRINT "You get one point for the last card."
2000 PRINT
2010 B#:=B#+1
2020 IF B#>121 THEN 1840
2030 F#:=C#*B#*B#
2040 GOTO 1890
2050 PRINT "I get one point for the last card."
2060 PRINT
2070 B#:=B#+1
2080 IF B#>121 THEN 1820
2090 F#:=C#*B#*B#
2100 GOTO 1890
2110 Y#:=Y#+P#
2120 C#:=0
2130 C#:=1
2140 B#:=B#
2150 FOR J# = 1 TO 4
2160 I#:=I#+1
2170 IF I#="3" THEN 2210
2180 IF I#="4" THEN 2210
2190 IF I#="0" THEN 2230
2200 FOR J# = 1 TO H#
2210 IF I#="1" THEN J# THEN 2210
2220 NEXT J#
2230 IF H#="1" THEN J# THEN 2230
2240 B#:=B#+1
2250 J#:=J#+1
2260 GOSUB 3020
2270 IF P#>0 THEN P#:=P#
2280 I#:=I#+P#
2290 I#:=I#+P#
2300 NEXT I#
2310 C#:=C#
2320 B#:=B#
2330 IF I#>4 THEN 2470
2340 IF C#>"go" AND C#>"GO" THEN 2440
2350 IF C#>1 THEN 2450
2360 PRINT
2370 PRINT "I get 1 point for the last card."
2380 PRINT
2390 B#:=B#+1
2400 IF B#>121 THEN 1820
2410 GOTO 1890
2420 IF B#>131 THEN 1820
2430 GOTO 1890
2440 PRINT "I'll give you 1 point for last card."
2450 PRINT
2460 B#:=B#+1
2470 IF B#>121 THEN 1840
2480 C#:=B#*B#
2490 C#:=0
2500 GOTO 1940
2510 C#:=1
2520 GOTO 1940
2530 IF C#>1 THEN 1890
2540 PRINT "Go"
2550 B#:=1
2560 GOTO 1890
2570 IF B#>0 THEN 2670
2580 PRINT
2590 IF B#>1 THEN 2640
2600 PRINT "I get 1 point for the last card."
2610 B#:=B#+1
2620 IF B#>121 THEN 1820
2630 GOTO 2670
2640 PRINT "You get 1 point for the last card."
2650 B#:=B#+1
2660 IF B#>121 THEN 1840
2670 PRINT
2680 RETURN
2690 C#:=1
2700 B#:=B#+1
2710 IF C#>1 THEN 2840
2720 FOR J# = 1 TO 4
2730 I#:=I#+J#
2740 FOR H# = 1 TO 4
2750 IF I#="1" THEN 2810
2760 I#:=I#+1
2770 J#:=J#+1
2780 J#:=1
2790 I#:=I#+1
2800 GOTO 2740
2810 FOR J# = 1 TO 4
2820 I#:=I#+J#
2830 IF I#="1" THEN H# THEN 2880
2840 NEXT J#
2850 I#:=I#+1
2860 I#:=I#+1
2870 J#:=J#+1
2880 B#:=B#+I#+1
2890 J#:=J#+1
2900 GOSUB 3020
2910 PRINT "My card is the ";C#;"(I";I#,1)
2920 PRINT "Sum =";PRINT USING"###";B#
2930 PRINT " Points =";PRINT USING"####";P#
2940 P#:=2
2950 B#:=B#+P#
2960 IF B#>121 THEN 1820
2970 IF B#>131 THEN 3000
2980 F#:=C#*B#*B#
2990 GOTO 1890
3000 IF C#="go" OR C#="GO" THEN 1940
3010 GOTO 1890
3020 REM ##
3030 REM ## CHECK FOR 15 OR 31 OR
3040 REM ## 2,3,4 OF A KIND NUMS
3050 REM ##
3060 P#:=0
3070 IF C#>1 THEN 3100
3080 IF B#>15 THEN 3110
3090 P#:=3
3100 GOTO 3140
3110 IF B#>31 THEN 3140
3120 P#:=2
```

Cribbage

```
3130 MY=2:IF D=2ND THEN MY=0-2
3140 FOR I=0 TO MY STEP -1
3150 IF J(1)(3)(1)-1 THEN GOTO 3250
3160 ON C-1 GOTO 3170,3190,3210
3170 P=P+2
3180 GOTO 3220
3190 P=P+4
3200 GOTO 3220
3210 P=P+6
3220 NEXT I
3230 REM ## RUNS
3240 IF C=2 THEN GOTO 3300
3250 P=0
3260 FOR I=0 TO C
3270 SCORE=3310
3280 NEXT I
3290 P=P+8
3300 RETURN
3310 FOR J=0 TO C
3320 J=C+100+300-2+J
3330 NEXT J
3340 FOR K=0 TO J
3350 FOR L=0 TO J
3360 IF J=C+10+30L+10J THEN GOTO
3370 J=C+100
3380 J=C+100+30L+10J
3390 J=L+101+8
3400 NEXT L
3410 NEXT K
3420 FOR I=0 TO J-1
3430 IF J=C+100+30(I+1)-1 THEN GOTO
3440 NEXT I
3450 P=P+1
3460 RETURN
3470 REM ##
3480 REM ## FIND THE BEST 4 CARD HAND
3490 REM ##
3500 P=0
3510 FOR I=1 TO 15
3520 I=4+29-I
3530 I=4+29-2I
3540 I=4+29-3I
3550 I=4+29-4I
3560 FOR J=1 TO 4
3570 M11,2I+M11,2I
3580 M12,2I+M12,2I
3590 M13,2I+M13,2I
3600 M14,2I+M14,2I
3610 M15,2I+25
3620 NEXT J
3630 REM ## EVALUATE THE HAND
3640 C=0
3650 SCORE=4530
3660 V=29-7I+P
3670 IF P=0 THEN P=P+P
3680 NEXT I
3690 REM ## FIND ALL HANDS WITH MAX
3700 REM SCORE (P)
3710 J=0
3720 FOR I=1 TO 15
3730 IF V<1,20+P THEN GOTO 3760
3740 J=J+1
3750 I(1)=I
3760 NEXT I
3770 IF J=1 THEN GOTO
3780 REM ## THIS IS SOME BEST HAND
3790 P=1(1)
3800 RETURN
3810 REM ## NO SOME BEST HAND,
3820 REM SEARCH FOR KEY CARDS
3830 REM ## CHECK FOR FIVES
3840 C=0
3850 J=0
3860 GOTO 4000
3870 REM ## CHECK FOR EIGHTS
3880 C=0
3890 D=0
3900 GOTO 4000
3910 REM ## CHECK FOR SEVENS
3920 C=7
3930 D=3
3940 GOTO 4000
3950 REM ## CHECK FOR JACKS
3960 C=11
3970 D=4
3980 GOTO 4000
3990 REM ## CHECK FOR ACE
4000 C=1
4010 D=0
4020 GOTO 4080
4030 REM ## RANDOMLY CHOOSE A HAND IF
4040 REM WE REACH THIS POINT
4050 FOR M=0 TO 47:R=INT(39999/111)+1:NEXT M
4060 P=1(1)+R
4070 RETURN
4080 REM ## BEST HAND WILL BE THAT
4090 REM WHICH HAS MOST OF CARD CH
4100 P=0
4110 FOR I=1 TO 15
4120 I(1)=0
4130 NEXT I
4140 FOR I=1 TO J
4150 FOR K=1 TO 4
4160 L=1(1)+I,K
4170 IF M1,L,4<C+P THEN GOTO
4180 I(1)=I(1)+1
4190 NEXT K
4200 IF J(1)<P THEN P=J(1)
4210 NEXT I
4220 C=0
4230 FOR I=1 TO J
4240 IF J(1)<P THEN GOTO 4270
4250 P=I+1
4260 P=1(1)
4270 NEXT I
4280 IF C<1 THEN GOTO 4300
4290 RETURN
4300 ON 2 GOTO 3870,3910,3950,3990,4030
4310 REM ##
4320 REM ## GENERATE THE UP CARD
4330 REM ##
4340 L=INT(39999/11)+4
4350 PRINT
4360 PRINT "The up card is the "G(1)G(2),L
4370 PRINT
4380 FOR I=1 TO 4
4390 M15,1I+5(1),I
4400 NEXT I
4410 T=M(5,4)
4420 IF M15,4<C+1 THEN GOTO 4450
4430 IF P=0 THEN GOTO 4480
4440 PRINT "2 points to me "
4450 S=S+1+2
4460 IF S(1)=1 THEN GOTO 4490
4470 RETURN
4480 PRINT "2 points to you "
4490 S=S+2+0
4500 IF S(2)=1 THEN GOTO 4460
4510 RETURN
4520 REM ##
4530 REM ## SCORE THE 5 CARD HAND
4540 REM ##
4550 REM ## CHECK FOR A JACK OF SPADE
4560 REM ## BUT AS UP CARD, EXCEPT CRIB
4570 P=0
4580 IF C=1 THEN GOTO 4620
4590 FOR I=1 TO 4
4600 IF M15,4<C+1 THEN GOTO 4640
4610 IF M11,3I+M15,2I THEN GOTO 4640
4620 P=P+1
4630 GOTO 4650
4640 NEXT I
4650 REM ## CHECK FOR A 4 OR 5 CARD
4660 FOR I=1 TO 5
4670 FOR J=1 TO 5
4680 IF M15,3I+M(1)+1,2I THEN GOTO
```

Cribbage

```
4670 NEXT I
4700 REM ## CRIB SCORES ONLY FOR A 5
4710 REM   CARD FLUSH
4720 IF C(1) THEN 4770
4730 P=P+4
4740 IF M(4,2) OR M(5,2) THEN 4790
4750 P=P+1
4760 GOTO 4790
4770 IF M(4,3) OR M(5,3) THEN 4790
4780 P=P+5
4790 REM ## CHECK FOR 2 CARD SUITS OF 15
4800 FOR I=1 TO 4
4810 FOR J=I+1 TO 5
4820 IF M(I,2)+M(J,2) <= 15 THEN 4840
4830 P=P+2
4840 NEXT J
4850 NEXT I
4860 REM ## CHECK FOR 3 CARD SUITS OF 15
4870 FOR I=1 TO 3
4880 FOR J=I+1 TO 4
4890 FOR K=J+1 TO 5
4900 IF M(I,2)+M(J,2)+M(K,2) <= 15 THEN 4920
4910 P=P+2
4920 NEXT K
4930 NEXT J
4940 NEXT I
4950 REM ## CHECK FOR 4 CARD SUITS OF 15
4960 FOR I=1 TO 2
4970 FOR J=I+1 TO 3
4980 FOR K=J+1 TO 4
4990 FOR L=K+1 TO 5
5000 IF M(I,2)+M(J,2)+M(K,2)+M(L,2) <= 15 THEN 5020
5010 P=P+2
5020 NEXT L
5030 NEXT K
5040 NEXT J
5050 NEXT I
5060 REM ## CHECK FOR 5 CARD SUITS OF 15
5070 S=0
5080 FOR I=1 TO 5
5090 S=S+M(I,2)
5100 NEXT I
5110 IF S <= 15 THEN 5050
5120 P=P+2
5130 REM ## CHECK FOR PAIRS AND THREES
5140 REM   OR FOUR OF A KIND
5150 FOR I=1 TO 13
5160 J=I+1
5170 NEXT I
5180 FOR I=1 TO 5
5190 J=M(I,4)
5200 J12=J23=J+1
5210 NEXT I
5220 FOR I=1 TO 13
5230 ON J11+J2 GOTO 5270,5270,5260,5280,5240
5240 P=P+6
5250 P=P+6
5260 P=P+2
5270 NEXT I
5280 REM ## SORT HAND INTO ASCENDING
5290 REM   SEQUENCE
5300 FOR I=1 TO 5
5310 FOR J=1 TO 5
5320 IF M(I,4) < M(J,4) THEN 5340
5330 M=H(I,4)
5340 M(I,4)=M(J,4)
5350 M(J,4)=M
5360 NEXT J
5370 NEXT I
5380 REM ## CHECK FOR A 5 CARD RUN
5390 S=M(1,4)-S(1,1)
5400 FOR I=1 TO 11
5410 FOR J=1 TO 5
5420 S(I,2)=S(I,1)+J-1
5430 NEXT J
5440 NEXT I
5450 FOR I=1 TO 11
5460 FOR J=1 TO 5
```

```
5470 IF M(I,2)+S(I,2) <= 15 THEN 5500
5480 NEXT J
5490 REM ## A 5 CARD RUN
5500 P=P+S(1,5)
5510 RETURN
5520 NEXT I
5530 REM ## CHECK FOR A 4 CARD RUN
5540 FOR L=1 TO 3
5550 S=M(L,4)-R(L,1)
5560 FOR I=1 TO 4
5570 FOR J=I TO 4
5580 R(I,2)=R(I,1)+J-1
5590 NEXT J
5600 NEXT I
5610 FOR I=1 TO 4
5620 FOR M=1 TO 4
5630 IF M OR M-1,4) OR (I,4) THEN 5650
5640 NEXT M
5650 REM ## A 4 CARD RUN
5660 P=P+R(1,5)
5670 RETURN
5680 NEXT I
5690 NEXT L
5700 REM ## CHECK FOR A 3 CARD RUN
5710 FOR L=1 TO 3
5720 S=M(L,4)-S(1,1)
5730 FOR I=1 TO 3
5740 S(I,2)=S(I,1)+1
5750 NEXT I
5760 FOR I=1 TO 3
5770 IF M(I,1)-1,4) OR (I,1) THEN 5800
5780 NEXT I
5790 REM ## A 3 CARD RUN
5800 P=P+S(1,3)
5810 RETURN
5820 NEXT L
5830 RETURN
5840 REM ##
5850 REM ## SHUFFLE THE DECK
5860 REM ##
5870 FOR I=1 TO 52
5880 I(I)=0
5890 NEXT I
5900 FOR I=1 TO 52
5910 J=INT(52*RND*(I+1))+1
5920 IF I(I) <= 0 THEN 5910
5930 S(I,1)=J
5940 S(J,2)=INT(52*(I+1)/51)+1
5950 S(I,4)=J
5960 IY=50:IF S(I,4) <= IY THEN IY=IY+4)
5970 S(I,2)=IY
5980 I(I)=1
5990 NEXT I
6000 RETURN
6010 REM ##
6020 REM ## CUT FOR DEAL
6030 REM ##
6040 PRINT "Please cut for deal!"
6050 INPUT I
6060 IF I < 1 THEN 6060
6070 IF I > 52 THEN 6100
6080 PRINT "Enter the card number to cut."
6090 GOTO 6040
6100 IF I <= INT(1) THEN 6060
6110 I1=I+1,1)
6120 PRINT "Your card is the ",C(I1)
6130 J=INT(52*RND*(I1+1))
6140 IF J=0 THEN 6130
6150 J1=M(I1,1)
6160 PRINT " My card is the ",C(J1)
6170 IF S(I1,4) <= S(J1,4) THEN 6200
6180 IF S(J1,4) <= S(I1,4) THEN 6220
6190 PRINT "Cut again"
6200 GOTO 6060
6210 REM ## COMPUTER DEALS
6220 M=0
6230 RETURN
6240 REM ## PLAYER DEALS
```

Cribbage

```
6250 P=J
6260 RETURN
6270 REM #1
6280 REM #1 DEAL
6290 REM #1
6300 IF #=0 THEN G330
6310 PRINT "you are dealing."
6320 G330 G340
6330 PRINT "I am dealing."
6340 H=J+M
6350 Y=I-N
6360 PRINT
6370 PRINT "Your cards are"
6380 FOR I=1 TO 4
6390 M=J+I-N
6400 L=J+I-M
6410 FOR J=1 TO 4
6420 REM #1 COMPUTER'S HAND
6430 M(I,J)=J+I-N
6440 REM #1 PLAYER'S HAND
6450 Y(I,J)=J+I-N
6460 NEXT J
6470 PRINT USING"###";J
6480 PRINT: " "C(1),I,1)
6490 NEXT I
6500 RETURN
6510 DATA 1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20
6520 DATA 1,2,4,6,8,10,12,14,16,18,20,1,2,3,5,7,9,11,13,15,17,19
6530 DATA 1,3,4,6,8,10,12,14,16,18,20,1,2,3,5,7,9,11,13,15,17,19
6540 DATA 1,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20
6550 DATA 1,2,3,5,6,1,4,5,7,8,9,10,11,12,13,14,15,1,2,3,12
6560 DATA 1,1,1,2,3,4,1,1,2,3,4,5,6,1,3,6,1,3,4,5,6,1,2,3
6570 DATA 1,1,2,3,4,5,6,1,2,3,4,5,6,7,8,9,10,11,12,13,14
6580 DATA 1,2,3,4,5,6,1,2,3,4,5,6
6590 DATA 1,2,3,4,5,6,1,2,3,4,5,6
6600 DATA 1,1,2,3,4,5,1,2,3,4,5,6,1,2,3,4,5,6,1,2,3,4,5
6610 DATA 1,2,3,4
6620 DATA "1", "2", "3", "4", "5", "6", "7", "8", "9", "10", "11", "12", "13", "14"
6630 DATA "A", "2", "3", "4", "5", "6", "7", "8", "9", "10", "11", "12", "13", "14"
6640 DATA "9", "10", "11", "12", "13", "14", "15", "16"
6650 END
```

***** CRIBBAGE *****

Enter a number from 1 to 500? 482

Please cut for deal? 34

Your card is the 4 of Spades

My card is the 5 of Clubs

You are dealing.

Your cards are:

- 1) 4 of Clubs
- 2) 2 of Clubs
- 3) 5 of Clubs
- 4) 4 of Diamonds
- 5) 4 of Spades
- 6) 10 of Spades

Your discards? 3,1

The up card is the 6 of Spades

My card is the 4 of Hearts

Sum = 1, Points = 0

Your play? 3

You played the 4 of Spades

Sum = 2, Points = 2

My card is the 5 of Hearts

Sum = 7, Points = 0

Your play? 4

You played the 10 of Spades

Sum =17, Points = 0

My card is the 10 of Diamonds

Sum =27, Points = 2

Your play? 4

You played the 4 of Diamonds

Sum =31, Points = 2

My card is the 4 of Hearts

Sum = 1, Points = 0

Your play? 3

You played the 5 of Clubs

Sum = 6, Points = 0

You get 1 point for the last card.

I score first

My cards are

- 5 of Hearts
- 4 of Hearts
- 9 of Clubs
- 10 of Diamonds

4 points

How many points? 6

The crib cards are

2 of Hearts

4 of Clubs

5 of Hearts

4 of Clubs

How many points? 5

Muggins for 1 points

I have 9 points.

You have 16 points.

I am dealing.

Your cards are:

- 1) 4 of Clubs
- 2) 10 of Spades
- 3) 8 of Hearts
- 4) 2 of Clubs
- 5) 3 of Diamonds
- 6) 9 of Diamonds

***** CRIBBAGE *****

Enter a number from 1 to 500? 382

Please cut for deal? 23

Your card is the 6 of Clubs

My card is the 3 of Hearts

I am dealing.

Your cards are:

- 1) 3 of Clubs
- 2) 9 of Diamonds
- 3) 9 of Spades
- 4) 4 of Hearts
- 5) 7 of Spades
- 6) 3 of Diamonds

Your discards? 1,2

The up card is the 2 of Spades

Your play? 3

You played the 7 of Spades

Sum = 7, Points = 0

Cribbage

My card is the 7 of Diamonds

Sum =14, Points = 2

Your play? 3

You played the 9 of Spades

Sum =23, Points = 0

My card is the 4 of Clubs

Sum =27, Points = 0

Your play? 4

That totals more than 31

? go

My card is the 2 of Clubs

Sum =31, Points = 2

Your play? 8D

My card is the 4 of Clubs

Sum = 6, Points = 0

I get one point for the last card.

Your play? 4

You played the 4 of Hearts

Sum = 4, Points = 0

Your play? 8D

You get one point for the last card.

Your play? 4

Already played

? 3

Already played

? 8D

You get one point for the last card.

Your play? 8D

You get one point for the last card.

Your play? 8D

You get one point for the last card.

Your play? 8D

You get one point for the last card.

Your play? 1

You discarded that card.

? go

You get one point for the last card.

Your play? go

You get one point for the last card.

Your play? 5

Already played

? 4

You played the 3 of Diamonds

Sum = 3, Points = 0

You get 1 point for the last card.

You score first

How many points? 10

Not with that hand

10

Not with that hand

5

Not with that hand

3

Not with that hand

1

Reggins for 1 points

My cards are

4 of Clubs

7 of Diamonds

1 of Clubs

7 of Hearts

8 points

The crib cards are

3 of Spades

5 of Clubs

4 of Clubs

9 of Diamonds

2 points

I have 14 points.

You have 9 points.

You are dealing.

Your cards are

1) K of Clubs

2) 2 of Clubs

3) 5 of Clubs

4) 4 of Diamonds

5) A of Spades

6) 10 of Spades

Your discards? 3,2

The up card is the 6 of Diamonds

My card is the 4 of Hearts

Sum = 2, Points = 0

Your play? 1

You played the K of Clubs

Sum =11, Points = 0

My card is the 5 of Hearts

Sum =16, Points = 0

Your play? 4

You played the 4 of Diamonds

Sum =20, Points = 0

My card is the 9 of Clubs

Sum =29, Points = 0

Your play? 4

That totals more than 31

? go

I get 1 point for the last card.

Your play? 4

You played the 10 of Spades

Sum =10, Points = 0

My card is the 10 of Diamonds

Sum =20, Points = 2

Your play? 3

You played the 5 of Clubs

Sum =25, Points = 0

You get 1 point for the last card.

I score first

My cards are

5 of Hearts

4 of Hearts

9 of Clubs

10 of Diamonds

4 points

How many points? 3

Cribbage

Muggins for 3 points

The crib cards are

- J of Hearts
- 4 of Clubs
- 7 of Clubs
- 2 of Clubs

How many points? 3

Not with that hand

1

Muggins for 3 points

I have 28 points.
You have 14 points.

***** CRIBBAGE *****

Enter a number from 1 to 500? 48

Please cut for deal? 3a

Your card is the 7 of Clubs
My card is the K of Diamonds
You are dealing.

Your cards are:

- 1) 4 of Spades
- 2) 6 of Clubs
- 3) 5 of Clubs
- 4) 3 of Hearts
- 5) 2 of Clubs
- 6) 5 of Spades

Your discards? 2,2

The up card is the 4 of Diamonds

My card is the 7 of Spades

Sum = 7, Points = 0

Your play? 1

You played the 4 of Spades

Sum = 11, Points = 0

My card is the 7 of Hearts

Sum = 18, Points = 0

Your play? 5

You played the 5 of Spades

Sum = 23, Points = 0

My card is the 8 of Clubs

Sum = 31, Points = 2

Your play? 8D

My card is the 7 of Spades

Sum = 7, Points = 0

I get one point for the last card.

Your play? 5

You played the 5 of Clubs

Sum = 3, Points = 0

Your play? 4

You played the 5 of Hearts

Sum = 8, Points = 0

You get 1 point for the last card.

I score first

My cards are

- 7 of Spades
- 7 of Hearts
- 8 of Clubs
- 3 of Diamonds

4 points

How many points? 2

Muggins for 2 points

The crib cards are

- K of Clubs
- 4 of Spades
- 7 of Hearts
- 8 of Clubs

How many points? 4

I have 13 points.
You have 7 points.

I am dealing.

Your cards are:

- 1) 6 of Clubs
- 2) 3 of Spades
- 3) 3 of Clubs
- 4) K of Spades
- 5) K of Diamonds
- 6) 3 of Diamonds

Your discards? 3,4

The up card is the 10 of Spades

Your play? 4

You discarded that card.

? 5

You played the K of Diamonds

Sum = 10, Points = 0

My card is the 3 of Spades

Sum = 20, Points = 0

Your play? 2

You played the 5 of Spades

Sum = 25, Points = 0

6a

Your play? 6

You played the 3 of Diamonds

Sum = 28, Points = 0

Your play? 2

You discarded that card.

? 2

Already played

? 1

That totals more than 31

? 8D

I'll give you 1 point for last card.

My card is the 3 of Spades

Sum = 10, Points = 0



Dukedom



Dukedom by Rick Merrill and David Ahl (1989) is the original computerized land management game. It was expanded by Lee Schneider and Todd Voren as *Kingdom* (1974) and then by Vince Talbot as *Dukedom* (1976). It was further revised by James Hamman and finally converted to Microsoft Basic by Richard Kopley. This final version first appeared in *Creative Computing*, February 1980.

You are one of several Dukes chosen by the High King to help run the Kingdom. Your Duchy is not in the best of shape, and your job is to build up its population, land holdings, and grain reserves. Your secret ambition is to become powerful enough to overthrow the High King.

The game cycles on an annual basis, and it is now fall and the harvest has just been completed. Each year at this time the computer will display the current population, land and grain totals, followed by a detailed report of the previous year's events. Note that land and grain are measured in metric units: hectares (HA.) and hectoliters (HL.), respectively.

Each year you will have to make the following decisions:

Grain for Food

You must decide how much grain to feed the peasants. 14 HL. of grain will just adequately feed one peasant; 13 will cause some hunger and decrease the peasants' fighting ability, and 12 or fewer will cause

some starvation. The peasants will complain if you try to starve them excessively and they know that you are holding back grain. If you feed the peasants more than 14 HL. each (up to a maximum of 18) they will appreciate the boon and fight better in any war the following summer. A long term memory keeps track of the peasants' cumulative attitude (it fades slowly with time) and if you create sufficient bad will (by under-feeding them, for instance) they will depose you. You may enter the quantity of grain for the peasants in two ways: Numbers less than 100 are interpreted as hectoliters-per-peasant, while an entry of 100 or more represents the total amount for the entire population.

Land to Buy

Enter the number of hectares of land you want to buy. The prices offered vary from about 4 hectoliters/hectare to about 50, depending primarily on last year's crop yield. If you don't want to buy any land, enter 0. You will then be given the option of selling your land at a price one unit lower than the buying price. Enter the number of hectares you want to sell, or enter 0 if you don't want to sell any.

Land to Plant

Enter the number of hectares you wish to plant. Each hectare planted will require 2 hectoliters of grain to seed it. Also, remember that each peasant can plant

Dukedom

and care for no more than 4 hectares. There is no fertilizer and no alternate crop, so land used many years in a row becomes depleted. The annual report lists the number of hectares you have of each of six classes from 100% yield to 0%. In any given year, land used in any class moves 1 step closer to being totally depleted while unused land moves two steps closer to fallow (100%). The best quality land will always be planted first. The yield for fallow land is calculated each year at random (variances in the weather) and ranges from 4 to 13 hectoliters of grain harvested for each hectare planted. The actual yield obtained will be the average generated by the various qualities of land used.

Special Operating Instructions

When a response is prompted by a "Y", a Y or N may be given for Yes or No, respectively. A simple return will be assumed to be a "N" response.

When a response is prompted by a "##", a non-negative integer is required. Any fraction will be trimmed from input, and a simple return will be interpreted as an entry of 0.

General Information

Running totals are maintained by the computer. All additions and subtractions are made at once and further transactions are limited by the current balance. No credit is allowed (with one exception).

One hectare of land equals about 2.5 acres. One hectoliter of grain equals about 2.8 bushels.

It is (usually) necessary to gamble occasionally to win. Most gambles consist of buying land you can't afford at very low prices and gambling that yield will be high and there won't be a war. If the gamble fails, you will spend the next ten years recovering (if you survive, that is).

Food Allocation

By overfeeding the peasants when possible, you can build up good will among the population. This may save your life as it can counteract unavoidable resentment in the future (during times of famine, for instance). Judge Lynch never sleeps!

Land Trading

When you buy land you always receive 60% quality. When you sell land the machine sells your 60% land until it's used up, then the 80% quality, and finally the 100% if you sell that much. You can never sell 40% (or poorer) quality land; no buyers will accept it.

There is another limit on land sales: You cannot sell more than 4000 HL worth in any one year. That's all the grain available to pay you with.

Crop Hazards

Sometimes the rats get into the granary and eat up to 10% or so of your reserve grain. Rats never eat field grain—field grain is eaten by the seven year locusts. They eat half of all your crop in the years that they appear. The yield printed in these years already includes locust losses.

The King's Peasant Levy

Occasionally rats will eat so much of the High King's grain that some of his workers starve to death. When this happens, the King will require some peasants from each of his Dukedoms as replacements. You may supply them as requested or pay an alternate amount of grain.

Wars

Neighboring Dukedoms may attack you, hoping to obtain some land. This is more portable in years of poor crop yield. It is no secret, and you can attack first if you wish. This means that you and your peasants go over there some night and burn a few huts and generally make a great din. If your attack is impressive, the nearby Duke may cancel his war plans. This depends on the size of your attack force and the size of his current defense force. You will certainly lose some peasants in such an attack.

If your first attack fails, or if you do not elect to attack first, the war will occur. You had better hire some mercenaries since your enemy is doing the same. A mercenary is worth about 8 peasants in fighting power. Mercenaries cost 40 HL each, and there is a maximum of 75 mercenaries available to you. If your fighting power (mercenaries & peasants) exceeds your enemy's, you win; otherwise he wins. The winner acquires land from the loser in ratio to the size of the win. How much you feed the peasants last fall is now important and may occasionally make the difference between a win and a loss.

The winner also picks up some grain from the captured land and is able to harvest the captured land along with his own (at the same yield as his original land). The land acquired (or lost) will appear in next year's land quality table evenly distributed between the 100%, 80%, and 60% categories.

Since the mercenaries are horse mounted and the peasants are on foot, the mercenaries attack first. Thus, a large number of mercenaries will keep down

Dukedom

your peasant losses whether you win or lose. The mercenaries must be paid after the battle. You can use granary reserves and the actual grain captured from acquired land (the one exception to the no-credit rule), but not the anticipated harvest (the mercenaries want their pay NOW).

If you can't pay all the mercenaries, they will attack your peasants, killing them and collecting grain from their huts until fully paid. Since the peasants don't have much grain left this late in the season, even a small default may cost you a lot of peasants. Incidentally, if the mercenaries do turn on the peasants, they also rape every female in the Duchy, making next year's birth rate very high. (We ignore the fact that the women deliver only a few months later—these are no ordinary mercenaries.) All peasant deaths from war cause resentment to build up against you. Attack by your own mercenaries is quite heavily resented.

Plagues and Poxes

The plague will kill off a third of the population, but in so doing it confers a 13-year immunity on the survivors. Therefore the plague cannot occur again for at least 13 years.

The pox is less deadly, it kills 10% or fewer peasants but confers no immunity. It can occur several years in a row.

Taxes and Expenses

The High King charges a tax of $\frac{1}{4}$ HL. of grain for each HA. of land you possess (after war gains or losses). You had better be able to pay.

After the grain is harvested it must be milled. The castle granary can mill a maximum of 4000 HL. during the year. Additional harvest must be sent to the village miller at a charge of 10% of the amount milled. This amount is added to the castle overhead, which is fixed at 120 HL. per year.

Births and Deaths

During the year, some natural deaths and war-torn births have occurred. Both are lumped together as if they occur just after the fall harvest.

The computer now prints out the results for the year, and you start over again with the peasant's food decision.

Winning the Game

Through astute land management, profitable real-estate trading, winning a few wars, and lots of luck, you may be able to build up your Duchy. If instead you let it decline, the High King may take it away

from you and select a new manager. An unemployed Duke can find employment as a mercenary in somebody else's game.

Prosperity brings its risks. If you get too prosperous, the High King may become worried and begin to subsidize wars against you. These subsidies get larger as the game progresses.

If you should persevere, you may eventually beat some Duke so badly that you succeed in taking over his entire Duchy. In addition to the most 400 HA. of land you will obtain, you get all of his surviving peasants (your war casualties will be positive) and the remaining contents of his granary. This poses a real threat to the crown, and the High King will begin planning a direct attack against you. At the beginning of the following year the King will demand twice the usual tax. You may pay it and continue the game as usual, or you may refuse. You will never be rid of the double tax once it starts unless you refuse to pay it. This constitutes defiance of your Lings Lord, and the King has his excuse for attacking you directly. The rest of the year will go as usual except that there will be no tax at all (no peasant levies either) and there will be no war threats (nobody dares).

The following year the King will attack just before planting time. You will have to hire as many foreign mercenaries as possible at 100 HL. each, grain in advance (the loser won't be in any position to pay). The program will automatically hire as many mercenaries as you can afford at the time. There is no limit to the number of foreign mercenaries you can hire except your current grain holdings. Each mercenary has as much fighting power as 8 peasants. If your total fighting strength is greater than the King's, you win. 250 to 300 mercenaries ought to be enough, depending on how many peasants you have.

Either way, the game is over. Good Luck!

Historical Waiver

No historical accuracy is implied in any way by this game. Except for the grain yields and planting requirements, the game is almost pure fiction. There were few mercenaries, Dukes did not often fight each other nor readily buy and sell land, the church was a power to be feared. The metric system had not yet been developed and the seven year locusts were not so reliable.

A Duke would have as his lord not a King but a Count or Earl and would have under him Barons or Marquises. Their various nobles were the fighting force of the Kingdom (peasants did not fight). Taxes were paid not in grain but in periods of military service. (Yes, the National Guard was a medieval invention—at the latest.)

Dukedom

```
10 REM      DUKEDOM-MICROSOFT BASIC
20 REM
30 GOTO 1
40 CLEAR:PRINT
50 CLEAR:400
60 DEF FNRS(G2),G2%=(ABS(1+RND(1)-G2%+G1%)-G1%)+G1%
70 DEF FNCT(G2%)-FNRS(1-FNRS(1)+FNRS(1)+RND(1))
80 GOTO 440:' skip subroutine def
90 REM
100 REM      SUBPROGRAM DEFINITIONS
110 REM
120 DEF FN(L,I),G1%,G1%,G1%,G1%,G1%,FN(I),FN(I),L,I%,G1%:
130 REM PARTIALLY GAUSSIAN RANDOM #
140 G2%=(FNRS(G2),G2%)
150 G3%=(FNRS(G3),G3%)
160 IF FNRS(G3),G3% > 0 THEN G3%=(G3%+FNRS(G1),G3%)/2 ELSE G3%+G3%
170 RETURN
180 REM
190 REM      READ YES/NO
200 REM
210 LINE INPUT V$;V$=LEFT$(V$,1)
220 IF LEN(V$)=0 THEN V$="N" ELSE IF ASC(V$) > 90 THEN V$=CHR$(ASC(V$)-32)
230 IF V$="Y" OR V$="N" THEN RETURN ELSE PRINT "Please enter yes or no":
240 GOTO 210
250 REM
260 REM      INPUT NUMERIC RESPONSE
270 REM
280 LINE INPUT V$;V$=INT(V$)
290 IF V$ < 0 THEN RETURN ELSE PRINT "Please enter a non-negative #":
300 GOTO 260
310 REM
320 REM      COMMON MESSAGES
330 REM
340 PRINT "But you don't have enough grain":PRINT "You have";G1%, " of grain left,"
350 IF X1=0 THEN PRINT "Enough to buy";INT(G1/11)%, " of land":RETURN
360 PRINT "Enough to plant";INT(G2/2) "% of land":RETURN
370 PRINT "But you don't have enough land"
380 PRINT "You only have";H1%, " of land left":RETURN
390 PRINT "But you don't have enough peasants"
400 PRINT "Your peasants can only plant";4*H1%, " of land":RETURN
410 REM
420 REM      WENT TO THE GARD
430 REM
440 PRINT "B U G G E R":PRINT:PRINT " by Microsoft Basic Version"
450 PRINT " Converted by:";PRINT " Bob Anderson"
460 F1$=G1%+1.5:REM GAGE ONLY INIT
470 PRINT "Do you want to skip detailed reports ?";:GOSUB 210;:REM
480 REM
490 REM      START NEW GAME
500 REM
510 READ Y$,C1,G1,G2,G3,G4,G5,G6,G7,G8
520 FOR I=1 TO 8:READ F1(I):NEXT I
530 FOR I=1 TO 3:READ L1(I):NEXT I
540 FOR I=1 TO 10:READ S1(I):NEXT I
550 FOR I=1 TO 4:READ P1(I):NEXT I
560 FOR I=1 TO 8:READ R1(I):NEXT I
570 FOR I=1 TO 3:READ L2(I):NEXT I
580 FOR I=1 TO 10:READ S2(I):NEXT I
590 RESTORE
600 DATA 0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
610 DATA -4,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
620 REM
630 REM      INIT BANDER BASE TABLE
640 REM
650 G1%=4:G2%=7:GOSUB 140:F1(1)=G2%+G3%+G4%:GOSUB 140:F1(2)=G2%+G3%+G4%:GOSUB 140
660 R1(1)=G2%:G1%=3:GOSUB 140:R1(4)=G2%:G1%=2:GOSUB 140
670 R1(5)=G2%:G1%=0:G2%=GOSUB 140:R1(6)=G2%
680 G2%=G3%:GOSUB 140:R1(7)=G2%:G1%=1:GOSUB 140:R1(8)=G2%
690 REM
700 REM      DISPLAY LAST YEARS RESULTS
710 REM
720 PRINT:PRINT:PRINT "Year";Y$;"Peasants";P;"Land";L;"Grain";G1:PRINT
730 IF B="Y" THEN G30
740 FOR J1%=1 TO 3:IF P4(J1)=0 OR J1%=1 THEN PRINT P1(J1);TAB(20);P4(J1)
750 NEXT J1:PRINT "Peasants at end";TAB(20);P:PRINT
760 FOR J1%=1 TO 3:IF L4(J1)=0 OR J1%=1 THEN PRINT L1(J1);TAB(20);L4(J1)
770 NEXT J1:PRINT "Land at end of year";TAB(20);L:PRINT
780 PRINT "1000 800 600 400 200 Dec":PRINT USING "#####";G1(1)
```

Dukedom

```
790 FOR J10=0 TO 6:PRINT USING "####":S1(1);NEXT J10:PRINT:PRINT
800 FOR J10=0 TO 10:IF S1(1)<0 OR J10=10 THEN PRINT S4(1);TAB(25);S(1);
810 NEXT J10:PRINT "Break at end of year";TAB(25);S
820 IF Y3<0 THEN PRINT "Covers crop damage due to seven's":PRINT "year societal"
830 PRINT:PRINT:GOTO 840
840 FOR I2=1 TO S4(1):GOTO NEXT:FOR I3=1 TO S4(1):GOTO NEXT
850 FOR I2=1 TO 10 :S1(1)=S1(1)+I2*I3:I3=I3+1:GOTO 840
860 REM
870 REM TEST FOR END OF GAME
880 REM
890 IF I3 > 33 THEN #10 ELSE PRINT "You have no free peasants left that"
900 PRINT"The High King has abolished your Duchy":PRINT:PRINT:GOTO 2400
910 IF L1=199 THEN GOTO ELSE PRINT "You have a little land left that":GOTO 930
920 IF L1=98 OR L2=99 THEN GOTO ELSE IF S=429 THEN GOTO
930 PRINT "The peasants tired of war and starvation"
940 PRINT "You are deposed":PRINT:GOTO 2400
950 IF Y3 > 45 AND Y2 THEN PRINT "You have reached the age of retirement":GOTO 2400
960 L1=0:IF L2=0 THEN PRINT "The King demands tribute the royal tax is" ELSE GOTO 1000
970 PRINT "THE KING TO PREVENT WAR, WILL YOU PAY?": GOSUB 210
980 GOTO IF Y2=0 THEN GOTO
990 REM
1000 REM FOOD FOR PEASANTS
1010 REM
1020 PRINT "Break for food =":GOSUB 280:Y2=Y2+Y3(1)+Y3(2)+Y3(3)
1030 IF Y2=0 THEN GOSUB 240:GOTO 1000
1040 IF W(1) AND W(2) THEN PRINT "The peasants demonstrate before the":PRINT "castle"
1050 S1(1)=S1(1)+G1
1060 S1=Y2
1070 IF S1<15 THEN PRINT "Some peasants have starved":P1(2)=INT(S/W(1)+W(2)
1080 S1=S1-14:Y2=Y2-14:GOTO 1000:IF S1<0 THEN Y2=0:GOTO 1000
1090 IF L2=0 THEN GOTO ELSE IF P<33 THEN GOTO
1100 REM
1110 REM LAND BUY/SELL
1120 REM
1130 C=C(1)+INT(G2*(P+1)-S1(1)+S1(1)+G1(1)+G1(2)+G1(3))
1140 PRINT "Land to buy at":TAB(14);P, " = ",G1(1)+G1(2)+G1(3)+P*(C)
1150 IF C<0 > 5 THEN GOSUB 240:GOTO 1140
1160 L2=L2+W(1)+S1(1)+P(1)+W(2) WHEN L2=0 ELSE C=C+S1(1)+G1(1)+G1(2)
1170 FOR J10=1 TO S1(1)+G1(1)+G1(2)+G1(3) PRINT "Land to sell at":TAB(14);P, " = ",G1(1)+G1(2)+G1(3)
1180 IF W(2) THEN PRINT "But you only have":TAB(14);P, " of good land":GOTO 1210
1190 G1=W(1):IF S1(1)< 4000 THEN GOTO
1200 PRINT "No buyers have that much grain to buy"
1210 NEXT J10:PRINT "Buyers have lost interest":W(2)=S1(1)+G1(1)+G1(2)+G1(3)
1220 L2=L2+W
1230 FOR J10=0 TO 6 STEP -1:IF W(4)<J10 THEN GOTO
1240 W4=S1(1)+S1(2)+S1(3)+S1(4)+S1(5)+S1(6)+S1(7)
1250 PRINT "Land selling low error":STOP
1260 S1(1)=S1(1)+W
1270 L=L2(1):IF L<10 THEN #10
1280 IF L<21<0 AND S1(4) THEN GOTO ELSE GOTO 1210
1290 S1(1)=INT(S1(1)/2):PRINT "The High King appreciates half"
1300 PRINT"of your earnings as punishment":PRINT"for selling at such a low price"
1310 G1=G1(1)
1320 REM
1330 REM WAR WITH THE KING
1340 REM
1350 IF Y3< -3 THEN GOTO 1460
1360 PRINT "The King's army is about to attack"
1370 PRINT "your duchy":S1(1)=INT(S1/100):PRINT"at 100 PL, each loss in advance!"
1380 PRINT "You have hired":TAB(14);"foreign mercenaries":IF S(1)<P(2) THEN GOTO 1460
1390 PRINT "Your head is placed atop of the":PRINT "castle gate":GOTO 2400
1400 PRINT "Give the 15000 from the crown = you"
1410 PRINT "are High King's & rear by military"
1420 PRINT "THESEATERS ARE HOW MANY .....":PRINT:PRINT:PRINT:END
1430 REM
1440 REM GRAIN PRODUCTION
1450 REM
1460 PRINT "Land to be planted = ":GOSUB 290:IF V1 THEN GOSUB 370:GOTO 1460
1470 S1(1)=2*V1:IF G1(1) > 5 THEN GOSUB 240:GOTO 1460
1480 S1(S)=V1+G1(1)
1490 FOR I2=1 TO S1(1):GOTO NEXT
1500 FOR J10=1 TO 6:IF W(4)<J10 THEN GOTO
1510 W4=S1(1)+S1(2)+S1(3)+S1(4)+S1(5)+S1(6)+S1(7)
1520 PRINT "LAND TABLE ERROR":STOP
1530 S1(1)=W(4)+S1(2)+S1(3)+S1(4)+S1(5)+S1(6)+S1(7)+G1(1)+G1(2)+G1(3)
1540 FOR J10=0 TO 6:S1(1)=S1(1)+S1(2)+S1(3)+S1(4)+S1(5)+S1(6)+S1(7)
1550 FOR J10=1 TO S1(1):S1(1)=S1(1)+I2*G1(1)+I2*G1(2)+I2*G1(3):NEXT J10:G1(1)=G1(1)+W(1)
1560 REM
```

Dukedom

```
1070 REM      CROP YIELD AND LOSS
1080 REM
1090 G=FNK(X2)=X1*IF INT (Y1/7)ATY1 THEN PRINT "Seven year locusts":G=INT (G*.85)
1100 X1=G
1110 FOR J2=1 TO 5:G1=X1*(48/25)*.91,2+.24/13:NEXT J1:IF G1=0 THEN C1=G:G=G/5:G1=1/5
1120 G1=INT ((G1/5)/18)*1000/1000+C1
1130 PRINT "Yield =";G1,"(M, P, R)";FNK(X1)=G1:IF X1 < Y THEN 1750
1140 G1=G-INT((G1/5)/18)*1000/1000
1150 PRINT "Waa, waa! the gainers":IF P < AT OR K3=1 THEN 1760
1160 X1=FNK(X1),IF X1> P:30 THEN 1750
1170 PRINT "The King requires";X1;"mercenarys for";PRINT"his estate and since;Will you supply?"
1180 PRINT"then ;Y1es or no?";1000/M,"(M, P)"
1190 PRINT"grain instead ;Nig ? ";1000/5M, 210
1200 IF Y=WT THEN G1=G-1000*X1/5+G*(1/5):G1TO 1750
1210 P1=INT((P/P)13)
1220 REM
1230 REM      war
1240 REM
1250 IF X1=0 THEN 1760
1260 PRINT "The High King calls for peasant levies"
1270 PRINT"and hires many foreign mercenaries":X1=210:G1TO 2180
1280 X1=INT((1-.15G1)/.8)*1000/1000+21-25/X1:G1
1290 IF X1>0 OR P=0 OR 1780<400+50=1000 THEN 1820
1300 PRINT "The High King grows uneasy and war"
1310 PRINT "the subsidizing wars against you": X1=X1+.2*X1:G1TO 1830
1320 G1=0
1330 G1=FNK(X1),IF X1>0 THEN 2180
1340 PRINT "A war by Duke threatens war";J1=2:INT(X1=65):FNK(X1)
1350 X1 = 1-2-4G1/50+25*(FNK(X1)-1):PRINT "Will you attack first ? ";1000/5M, 210
1360 IF Y=WT THEN 1750
1370 IF X1=0 THEN 1870 ELSE PRINT "Peace negotiations successful"
1380 P1=X1-1:G1=0:G1TO 1750
1390 PRINT "First strike failed - you need"
1400 PRINT"professional";P1=X1=X1-21-25/X1:G1=25:P1
1410 P=X1/40:IF X1<0 THEN X1=X1-24P-140-24P/5):G1TO 2180
1420 PRINT "How many mercenaries will you hire?";PRINT"at 40 M, each = ";1000/5M,210:IF Y/7 THEN PRINT
  "There are only 75 available for hire":G1TO 1750
1430 G1=INT((G1/5)+25*(FNK(X1)-1)*G1/200):G1=INT(.25*X1)
1440 G1=G-X1:G1:G1:0,0,0,0
1450 IF -L13/C1<.47M THEN 1750
1460 PRINT "You have been over run and have lost";PRINT"your entire Dukedom":G1TO 1750
1470 X1=L13
1480 FOR J1=0 TO 3:G1=INT(X1/4-21X1/17)-X1+G1:3 THEN X1=G1 ELSE G1=-G1:G1
1490 G1=G1+G1:G1:0=X1:G1=1-25/M:1750
1500 IF L13<399 THEN 2090
2010 PRINT "You have overrun the area and annexed";PRINT"his entire Dukedom"
2020 G1=FNK(X1)=G1+G1*(1+M-47.54-.55):IF G1=0 THEN 2040
2030 G1=0:PRINT "The King fears for his throne and"
2040 PRINT"may be planning direct action": G1TO 2090
2050 IF X1<0 THEN 2070
2060 PRINT "You have won the war";X1=-.67:G1=INT(1.74:13)+G1+G1:G1TO 2080
2070 PRINT "You have lost the war";X1=G1/4
2080 IF X1=0 THEN X1=0 ELSE X1=INT(15/10)
2090 G1=25*(G1/5)+P-1800/P:IF X1=0 THEN G1=X1/5:G1=INT(144:13)+15+40Y
2100 IF X1=0 THEN G1=1 - 25:G1TO 2150
2110 G1=G-2/P:G1=-INT((G1/5)/7)+1
2120 PRINT "There isn't enough grain to pay the";PRINT"mercenarys"
2130 G1=X1/10:P1=X1-P(210-P1)/47+P/100-P(21)
2140 P=X1/10:L1=L1+13:G1=L1-28P-140-28P/5
2150 REM
2160 REM      PLAGUE, NORTH, SOUTH
2170 REM
2180 X1=FNK(X1)=1:IF X1>0 THEN 2240
2190 IF X1<0 THEN 2230
2200 IF D10 THEN 2240
2210 PRINT "The BLACK PLAGUE has struck the area":D1=1:13=0
2220 P1=G1-INT(P/22),P=P-1:1:0:G1TO 2240
2230 PRINT "A P10 EPIDEMIC has broken out": G1=X1/5:P1=G1-INT(P/12):P=P/10
2240 X1=X1/5:G1=X1-X1*(P/12)=X1*(15/12)=1.25*(P/12)+X1
2250 P1=INT(P/11)+P/2+INT(1.5+P/22):P=X1*(P/12)+P/10
2260 G1=INT((G1/5)+25*(FNK(X1)-1)*G1/100)=4000
2270 G1=P1-G1:G1:0:G1=INT(.144:13)+G1/5:G1=1-120/5+G1/7
2280 IF X1=0 THEN 2260 ELSE X1=-INT(L1/2)
2290 X1=-818/5:G1=-25:1:0:G1=0
2300 IF -G1<0 THEN 2320
2310 PRINT "You have insufficient grain to pay";PRINT"the royal tax":G1TO 2430
2320 G1=0+G1:G1=X1/5+G1
2330 REM
```

Dukedom

2340 REM UPDATE COUNTER AND CONTINUE

2350 REM

2360 GO=INT(OUTS*65)/100:GOTO F30

2370 DATA "Peasants at start","Starvations","King's levy","War casualties"

2380 DATA "Leaving victims","Disease victims","Natural deaths","Births"

2390 DATA "Land at start","Bought/sold","Fruits of war"

2400 DATA "Grain at start","Used for food"

2410 DATA "Land deals","Seedling","Rat losses","Percenary hire"

2420 DATA "Fruits of war","Crop yield","Castle expense","Royal tax"

2430 PRINT "Do you wish to play again ? ";LOCUSL 236:IF V=0 THEN END

D U K E D O M

By Microsoft Basic Version

Converted By

Bob Anderson

Do you want to skip detailed reports ?

Year 0 Peasants 100 Land 600 Grain 4177

| | |
|-------------------|-----|
| Peasants at start | 95 |
| Natural deaths | -5 |
| Births | 0 |
| Peasants at end | 100 |

| | |
|---------------------|-----|
| Land at start | 600 |
| Land at end of year | 600 |

| | | | | | |
|------|-----|-----|-----|-----|------|
| 1000 | 800 | 600 | 400 | 200 | Depl |
| 216 | 200 | 184 | 0 | 0 | 0 |

| | |
|----------------------|-------|
| Grain at start | 5193 |
| Used for food | -1344 |
| Seedling | -768 |
| Crop yield | 1516 |
| Castle expense | -120 |
| Royal tax | -200 |
| Grain at end of year | 4177 |

(Beware crop damage due to seven year locusts)

Grain for food =12
Some peasants have starved
Land to buy at 7 HL./YR. = 200
Land to be planted = 400
Yield = 9.08 HL./YR.

Year 1 Peasants 113 Land 600 Grain 3889

| | |
|-------------------|-----|
| Peasants at start | 100 |
| Starvations | -7 |
| Natural deaths | -6 |
| Births | 13 |
| Peasants at end | 113 |

| | |
|---------------------|-----|
| Land at start | 600 |
| Bought/sold | 200 |
| Land at end of year | 800 |

| | | | | | |
|------|-----|-----|-----|-----|------|
| 1000 | 800 | 600 | 400 | 200 | Depl |
| 400 | 216 | 184 | 0 | 0 | 0 |

| | |
|----------------------|-------|
| Grain at start | 4177 |
| Used for food | -1200 |
| Land deals | -1400 |
| Seedling | -800 |
| Crop yield | 3632 |
| Castle expense | -120 |
| Royal tax | -400 |
| Grain at end of year | 3889 |

Grain for food =12

Some peasants have starved
Land to buy at 10 HL./YR. =
Land to sell at 17 HL./YR. =
Land to be planted = 800
Yield = 11 HL./YR.
Rats infect the gainers
The king requires 3 peasants for
his estate and wives.Will you supply
them 1/2 or pay 300 HL.of
grain instead this 1/2 y
A PIG EPIDEMIC has broken out

Year 2 Peasants 117 Land 800 Grain 5386

| | |
|-------------------|-----|
| Peasants at start | 113 |
| Starvations | -8 |
| King's levy | -3 |
| Disease victims | -6 |
| Natural deaths | -5 |
| Births | 16 |
| Peasants at end | 117 |

| | |
|---------------------|-----|
| Land at start | 800 |
| Land at end of year | 800 |

| | | | | | |
|------|-----|-----|-----|-----|------|
| 1000 | 800 | 600 | 400 | 200 | Depl |
| 400 | 400 | 0 | 0 | 0 | 0 |

| | |
|----------------------|-------|
| Grain at start | 3889 |
| Used for food | -1284 |
| Seedling | -800 |
| Rat losses | -187 |
| Crop yield | 4400 |
| Castle expense | -180 |
| Royal tax | -400 |
| Grain at end of year | 5386 |

Grain for food =12

Some peasants have starved
Land to buy at 21 HL./YR. = 50
Land to be planted = 400
Yield = 9 HL./YR.
Rats infect the gainers

Year 3 Peasants 132 Land 850 Grain 4910

| | |
|-------------------|-----|
| Peasants at start | 117 |
| Starvations | -9 |
| Natural deaths | -8 |
| Births | 18 |
| Peasants at end | 132 |

| | |
|---------------------|-----|
| Land at start | 800 |
| Bought/sold | 50 |
| Land at end of year | 850 |

| | | | | | |
|------|-----|-----|-----|-----|------|
| 1000 | 800 | 600 | 400 | 200 | Depl |
| 450 | 400 | 0 | 0 | 0 | 0 |

Dukedom

Grain at start 5386
 Used for food -1428
 Land deals -1850
 Seeding -800
 Rat losses -233
 Crop yield 3400
 Castle expense -120
 Royal tax -425
 Grain at end of year 4910

Grain for food =13
 Land to buy at 20 HL./HL. = 50
 Land to sell at 19 HL./HL. =
 Land to be planted = 450
 Yield = 9 HL./HL.

Year 4 Peasants 153 Land 850 Grain 5794

Peasants at start 172
 Natural deaths -4
 Births 14
 Peasants at end 187

Land at start 850
 Land at end of year 850

| 100% | 80% | 60% | 40% | 20% | Dept |
|------|-----|-----|-----|-----|------|
| 400 | 850 | 0 | 0 | 0 | 0 |

Grain at start 4910
 Used for food -1714
 Seeding -800
 Crop yield 4850
 Castle expense -120
 Royal tax -425
 Grain at end of year 5794

Grain for food =13
 Land to buy at 17 HL./HL. = 50
 Land to be planted = 450
 Yield = 11 HL./HL.
 Rate infest the gateway
 The king requires 5 peasants for
 his estate and more, will you supply
 them 17les or pay 500 HL. of
 grain instead 950? y

Year 5 Peasants 171 Land 900 Grain 5712

Peasants at start 183
 King's levy -3
 Natural deaths -7
 Births 16
 Peasants at end 171

Land at start 850
 Bought/sold 50
 Land at end of year 900

| 100% | 80% | 60% | 40% | 20% | Dept |
|------|-----|-----|-----|-----|------|
| 500 | 400 | 0 | 0 | 0 | 0 |

Grain at start 5794
 Used for food -1829
 Land deals -850
 Seeding -800
 Rat losses -233
 Crop yield 4400
 Castle expense -140
 Royal tax -425
 Grain at end of year 5712

Grain for food =13
 Land to buy at 21 HL./HL. = 50
 Land to be planted = 500
 Yield = 9 HL./HL.
 Rate infest the gateway
 The king requires 4 peasants for
 his estate and more, will you supply
 them 17les or pay 400 HL. of
 grain instead 950? y
 The High King grows uneasy and war
 be subsidizing wars against you

Year 6 Peasants 197 Land 950 Grain 5128

Peasants at start 171
 King's levy -4
 Natural deaths -8
 Births 23
 Peasants at end 197

Land at start 900
 Bought/sold 50
 Land at end of year 950

| 100% | 80% | 60% | 40% | 20% | Dept |
|------|-----|-----|-----|-----|------|
| 450 | 500 | 0 | 0 | 0 | 0 |

Grain at start 5712
 Used for food -2228
 Land deals -1050
 Seeding -1000
 Rat losses -186
 Crop yield 4500
 Castle expense -170
 Royal tax -475
 Grain at end of year 5128

Grain for food =13
 Some peasants have starved

Land to buy at 18 HL./HL. = 50
 Land to sell at 17 HL./HL. =
 Land to be planted = 550
 Seven year locusts
 Yield = 8.78 HL./HL.
 Rate infest the gateway
 The king requires 5 peasants for
 his estate and more, will you supply
 them 17les or pay 300 HL. of
 grain instead 950? y
 The High King grows uneasy and war
 be subsidizing wars against you

Year 7 Peasants 205 Land 950 Grain 4405

Peasants at start 197
 Starvations -15
 King's levy -3
 Natural deaths -8
 Births 19
 Peasants at end 205

Land at start 950
 Land at end of year 950

| 100% | 80% | 60% | 40% | 20% | Dept |
|------|-----|-----|-----|-----|------|
| 400 | 450 | 100 | 0 | 0 | 0 |

Dukedom

| | |
|----------------------|-------|
| Grain at start | 5138 |
| Used for food | -2264 |
| Seedling | -1100 |
| Rat losses | -181 |
| Crop yield | 3787 |
| Castle expense | -120 |
| Royal tax | -475 |
| Grain at end of year | 4405 |

Grain for food = 12
 Some peasants have starved
 Land to buy at 12 Hl./745. =
 Land to sell at 15 Hl./745. =
 Land to be planted = 450
 Yield = 7,800 Hl./745.
 Rate interest the quarry
 The king requires 2 peasants for
 his estate and mines. Will you supply
 them 1750 or pay 300 Hl. of
 grain instead 1810 ? y

| | |
|---|-----|
| Year 8 Peasants 220 Land 950 Grain 4019 | |
| Peasants at start | 200 |
| Starvation | -15 |
| King's levy | -2 |
| Natural deaths | -4 |
| Births | 26 |
| Peasants at end | 220 |

| | |
|---------------------|-----|
| Land at start | 950 |
| Land at end of year | 950 |

| | | | | | |
|------|-----|-----|-----|-----|------|
| 100% | 80% | 60% | 40% | 20% | Dept |
| 500 | 400 | 50 | 0 | 0 | 0 |

| | |
|----------------------|-------|
| Grain at start | 4600 |
| Used for food | -2460 |
| Seedling | -900 |
| Rat losses | -150 |
| Crop yield | 3519 |
| Castle expense | -120 |
| Royal tax | -475 |
| Grain at end of year | 4019 |

The peasants tire of war and starvation
 You are deposed

Do you wish to play again ? n



Eliza

Eliza was originally written by Joseph Weizenbaum in LISP at MIT. The first version in Basic was written by Jeff Marder in 1973 and converted to MITS 8K Basic later to become Microsoft Basic by Steve Nash in 1977. It originally appeared in *Creative Computing*, July/August 1977.

Introduction

Eliza is a program which accepts natural English as input and carries on a reasonably coherent conversation based on the non-directive psychoanalytic techniques of Carl Rogers. You will have to forgive Eliza for her awkward English. You will find it

is best not to use punctuation (especially commas and contractions) in your input and keep each line of input to one main idea. Since Eliza is a non-directive therapist, you will have to carry the conversation; nevertheless, that can lead some mighty interesting results. You may end your conversation by typing in "SHUT UP" (or just "smut").

How It Works

In order to do what it does, Eliza must: (1) get a string from the user and prepare it for further processing; (2) find the keywords in the input string; (3) if a



keyword is found, take the part of the string following the keyword and "translate" all the personal pronouns and verbs ("I" becomes "YOU", "ARE" becomes "AM", etc.); (4) finally, look up an appropriate reply based on the keyword which was found, print it and, if necessary, the "translated" string. ELIZA uses four types of program data to accomplish this:

(1) 36 keywords, such as "I AM", "WHY DONT YOU", and "COMPUTER". The keywords are in order of priority, so Eliza will key on "YOU ARE" before "YOU".

(2) 12 strings used for the translation or conjugation process. These are in pairs such that if one member of the pair is found, the other is substituted for it. Examples: "I", "YOU", "AM", "ARE", etc.

(3) 112 reply strings. The strings are arranged in groups corresponding to the keywords. There is no fixed number of different replies for each keyword. Replies ending in a "*" are to be followed by the translated string, while the strings ending in normal punctuation are to be printed alone.

(4) Numerical data to determine which replies to print for each keyword. For each keyword there is a pair of numbers signifying the start of reply strings and the number of reply strings. Thus the fifth pair of numbers, (10, 4), means that the replies for the fifth keyword ("I DONT") start with the tenth reply string and that there are four replies.

| Name | Usage |
|-----------------------|---|
| <i>R(X),S(X),N(X)</i> | See text. |
| IS | Input string |
| KS | Keyword string |
| CS | Translated or conjugated string |
| FS | Reply string, also used to save KS in scanning for keyword |
| RS,SS | Strings used in conjugation process |
| PS | Previous input string |
| ZS | Scratch (used for simulating RESTORE NNNN statement) |
| N1 | Number of keywords |
| N2 | Number of conjugation strings |
| N3 | Number of replies |
| K | Keyword number |
| S,T | Used to save K and L when scanning for keyword |
| X,L | X,L Scratch. X is generally used for looping, while L is used for scanning through strings. |
| V | Used for scanning for keyword string. |

Detailed Explanation

Lines 10-160: Initialization. Arrays and strings are dimensioned. N1, N2, and N3, which represent the number of keywords, number of translation strings, and number of replies, respectively, are defined. Then the arrays are filled. S(keyword number) is the ordinal number of the start of the reply strings for a given keyword, R(keyword number) is the actual reply to be used next, and N(keyword number) is the last reply for

that keyword. Finally, an introduction is printed.

Lines 170-255: User input section. This part of the program gets a string from the user, places one space at the start of the string and two at the end (to make it easier to correctly locate keywords and to prevent subscripting out of bounds), throws out all the apostrophes (so DONT and DON'T are equivalent), and stops if the word SHUT is found in the input string (which it takes to mean SHUT UP). Eliza also checks for repetitive input by the user.

Lines 260-370: Keyword-finding section. Eliza scans the input string for keywords and saves the keyword of highest priority temporarily in S, T, and FS. If no keyword is found, the keyword defaults to number 36, NOKEYFOUND (which causes Eliza to say something noncommittal) and it skips the next section.

Lines 380-555: Translation or conjugation section. The part of the input string following the keyword is saved. Then pairs of translation strings, as described above, are read, and upon the occurrence of one of these strings, the other is substituted for it. When this is done Eliza makes sure there is only one leading space in the translated string.

Lines 560-640: Reply printing section. Using R(keyword number), S(keyword number), and N(keyword number), the correct reply is located. The pointer for the next reply is bumped and reset if it is too large. If the reply string ends in a "*" it is printed with the translated string, otherwise it is printed alone. The previously entered input string is saved to permit checking for repetitive input, and then Eliza goes back for more input.

Modifications

You can easily add, change, or delete any of the keywords, translation words, or replies. Remember, you will also have to change N1, N2, N3, and/or the numerical data. Just as a suggestion, if you decide to insert "ME" and "YOU" in the translation string list, put a nonprinting (control) character in YOU to prevent Eliza from substituting I→YOU→ME. This means that YOU will always be assumed to be the subject of a verb, never the object, but resolving that difficulty is a whole different problem.

What It All Means

We'll leave this to you. Although this program is an inferior imitation of the original, it does work. It is pretty far-fetched to believe that a psychoanalyst is nothing but a sentence-input-keyword-finder-conjugator-reply finder, but if you really think so, you can buy your computer a speech-recognition unit, a Computalker, and a green couch, and charge \$75 per hour. My computer, the doctor!

```
10 REM
20 REM ELIZA/DOCTOR
30 REM CREATED BY JOSEPH WEITENBERG 40 REM THIS VERSION BY JOFF GARBER
50 REM EDITED BY BOB ANDERSON
60 REM CREATIVE COMPUTING
70 REM
80 REM --- INITIALIZATION ---
90 DIM S$(72),R$(72),R#(72),P#(72),P$(72),I$(72)
100 DIM S$(24),R$(24),M$(24)
110 N#=#AND#1000#110
120 FOR S# TO N#AND#N#READ I#NEXT S
130 FOR R# TO R#
140 READ S$(S#),L$(R#)+R$(R#)+R$(R#)+R$(R#)+L#
150 NEXT S
160 PRINT "Hi! I'm Eliza. what is your problem?"
170 REM
180 REM --- USER INPUT ---
190 REM
200 INPUT I#
210 I#=" "+I#+" "
220 REM
230 FOR L# TO LEN I#
240 IF MID$(I#,L#,1)="" THEN I#=#LEFT$(I#,L-1)+RIGHT$(I#,LEN(I#)-L):GOTO 240
250 IF L# <= LEN(I#) THEN IF MID$(I#,L#,1)="" THEN PRINT "Shut up..."GOTO 260
260 NEXT L
270 IF I#="" THEN PRINT "PLEASE DON'T REPEAT YOURSELF!"GOTO 170
280 REM
290 REM --- FIND KEYWORD ---
300 REM
310 RESTORE
320 S#=""
330 FOR S# TO M#
340 READ S#
350 IF S#="" THEN GOTO 370
360 FOR L# TO LEN(S#)+1
370 IF MID$(I#,L#,LEN(S#))=S# THEN S#=$I#,P#=$#
380 NEXT L
390 NEXT S#
400 IF S#="" THEN S#=$I#,I#=$I#GOTO 430
410 S#=$#GOTO 430
420 REM
430 REM TAKE RIGHT PART OF STRING
440 REM AND CONJUGATE CORRECTLY
450 REM
460 RESTORE:FOR S# TO N#AND#READ I#NEXT S
470 C#=" "+RIGHT$(I#,LEN(I#)-LEN(P#)+L-1)
480 FOR S# TO M#
490 READ S#
500 FOR L# TO LEN(S#)
510 IF L-LEN(S#)+LEN(C#) THEN GOTO 520
520 IF MID$(C#,L,LEN(S#))=S# THEN GOTO 530
530 C#=#LEFT$(C#,L-1)+#+RIGHT$(C#,LEN(C#)-L-LEN(S#)+1)
540 L#=#LEN(S#)
550 GOTO 500
560 IF L-LEN(S#)+LEN(C#) THEN GOTO 570
570 IF MID$(C#,L,LEN(S#))=S# THEN GOTO 580
580 C#=#LEFT$(C#,L-1)+#R+RIGHT$(C#,LEN(C#)-L-LEN(S#)+1)
590 L#=#LEN(S#)
600 NEXT L
610 NEXT S#
620 REM
630 REM --- GET REPLY ---
640 REM
650 RESTORE:FOR S# TO N#AND#READ I#NEXT S
660 FOR S# TO N#AND#READ I#NEXT S
670 R#=#R#(I#)+I#IF R#(I#) THEN R#=#R#(I#)
680 IF RIGHT$(R#,1)="" THEN PRINT R#P#P#GOTO 170
690 PRINT LEFT$(R#,LEN(R#)-1):C#
700 P#=#P#GOTO 170
1000 REM
1010 REM --- PROGRAM DATA ---
1020 REM
1030 REM --- KEYWORDS ---
1040 REM
1050 DATA "CAN YOU", "CAN I", "YOU ARE", "YOUR", "I DON'T", "I FEEL"
1060 DATA "WHY DON'T YOU", "WHY DON'T I", "TALK TO YOU", "I CAN'T", "I AM", "I'M "
1070 DATA "YOU -", "I WANT", "WHAT", "HOW", "WHO", "WHERE", "WHEN", "WHY"
1080 DATA "NAME", "CAUSE", "SORRY", "DREAM", "HELLO", "NO ", "BYE"
```



0100 DATA "NO", "YOUR", "ALWAYS", "THINK", "ALIKE", "YES", "FRIEND"
 1100 DATA "COMPUTER", "MOREYFOUND"
 1200 REM
 1210 REM --- CONJUNCTION DATA ---
 1220 REM REM
 1230 DATA " ARE ", " AM ", " WERE ", " WAS ", " YOU ", " I ", " YOUR ", " MY "
 1240 DATA " THE ", " YOURS ", " IN ", " YOURS "
 1300 REM
 1310 REM --- REPLIES ---
 1320 REM
 1330 DATA "DON'T YOU BELIEVE THAT I CAN?"
 1340 DATA "PERHAPS YOU WOULD LIKE TO BE ABLE TO?"
 1350 DATA "YOU WANT ME TO BE ABLE TO?"
 1360 DATA "PERHAPS YOU DON'T WANT TO?"
 1370 DATA "DO YOU WANT TO BE ABLE TO?"
 1380 DATA "WHAT MAKES YOU THINK I AM?"
 1390 DATA "DOES IT PLEASE YOU TO BELIEVE THAT I AM?"
 1400 DATA "PERHAPS YOU WOULD LIKE TO BE?"
 1410 DATA "DO YOU SOMETIMES WISH YOU WERE?"
 1420 DATA "DON'T YOU REALLY?"
 1430 DATA "WHY DON'T YOU?"
 1440 DATA "DO YOU WISH TO BE ABLE TO?"
 1450 DATA "DOES THAT TROUBLE YOU?"
 1460 DATA "TELL ME MORE ABOUT SUCH FEELINGS."
 1470 DATA "DO YOU OFTEN FEEL?"
 1480 DATA "DO YOU ENJOY FEELING?"
 1490 DATA "DO YOU REALLY BELIEVE I DON'T?"
 1500 DATA "PERHAPS IN GOOD TIME I WILL."
 1510 DATA "DO YOU WANT ME TO?"
 1520 DATA "DO YOU THINK YOU SHOULD BE ABLE TO?"
 1530 DATA "WHY CAN'T YOU?"
 1540 DATA "WHY ARE YOU INTERESTED IN WHETHER OR NOT I AM?"
 1550 DATA "WOULD YOU PREFER IF I WERE NOT?"
 1560 DATA "PERHAPS IN YOUR FANTASIES I AM?"
 1570 DATA "HOW DO YOU KNOW I CAN'T?"
 1580 DATA "HAVE YOU TRIED?"
 1590 DATA "PERHAPS YOU CAN NOW?"
 1600 DATA "DID YOU COME TO ME BECAUSE YOU ARE?"
 1610 DATA "HOW LONG HAVE YOU BEEN?"
 1620 DATA "DO YOU BELIEVE IT IS NORMAL TO BE?"
 1630 DATA "DO YOU ENJOY BEING?"
 1640 DATA "WE WERE DISCUSSING YOU-- NOT ME."
 1650 DATA "OH, I?"
 1660 DATA "YOU'RE NOT REALLY TALKING ABOUT ME, ARE YOU?"
 1670 DATA "WHAT WOULD IT MEAN IF YOU SAID?"
 1680 DATA "WHY DO YOU WANT?"
 1690 DATA "SUPPOSE YOU SAID SO?"
 1700 DATA "WHAT IF YOU NEVER SAID?"
 1710 DATA "I SOMETIMES ALSO WANT?"
 1720 DATA "WHY DO YOU ASK?"
 1730 DATA "DOES THAT QUESTION INTEREST YOU?"
 1740 DATA "WHAT ANSWER WOULD PLEASE YOU THE MOST?"
 1750 DATA "WHAT DO YOU THINK?"
 1760 DATA "ARE SUCH QUESTIONS ON YOUR MIND OFTEN?"
 1770 DATA "WHAT IS IT YOU REALLY WANT TO KNOW?"
 1780 DATA "HAVE YOU ASKED ANYONE ELSE?"
 1790 DATA "HAVE YOU ASKED SUCH QUESTIONS BEFORE?"
 1800 DATA "WHAT ELSE COMES TO MIND WHEN YOU ASK THAT?"
 1810 DATA "WASN'T DON'T INTEREST ME."
 1820 DATA "I DON'T CARE ABOUT HOW, GO ON."
 1830 DATA "IS THAT THE REAL REASON?"
 1840 DATA "DON'T ANY OTHER REASONS COME TO MIND?"
 1850 DATA "DOES THAT REASON EXPLAIN ANYTHING ELSE?"
 1860 DATA "WHAT OTHER REASON MIGHT THERE BE?"
 1870 DATA "PLEASE DON'T APOLOGIZE."
 1880 DATA "ARE THERE ANY NOT NECESSARY."
 1890 DATA "WHAT FEELINGS DO YOU GET WHEN YOU APOLOGIZE."
 1900 DATA "DON'T BE SO DEFENSIVE."
 1910 DATA "WHAT DOES THAT DREAM SUGGEST TO YOU?"
 1920 DATA "DO YOU DREAM OFTEN?"
 1930 DATA "WHAT PERSONS APPEAR IN YOUR DREAMS?"
 1940 DATA "ARE YOU DISTURBED BY YOUR DREAMS?"
 1950 DATA "HOW DO YOU DO... PLEASE STATE YOUR PROBLEM."
 1960 DATA "YOU DON'T SEEM QUITE CERTAIN."
 1970 DATA "WHY THE UNCERTAIN TONE?"
 1980 DATA "CAN'T YOU BE MORE POSITIVE?"
 1990 DATA "YOU AREN'T SURE?"
 2000 DATA "DON'T YOU KNOW?"





```

2020 DATA "ARE YOU SAYING THAT JUST TO BE NEGATIVE?"
2030 DATA "YOU ARE BEING A BIT NEGATIVE."
2040 DATA "WHY NOT?"
2050 DATA "ARE YOU SURE?"
2060 DATA "WHY NOT?"
2070 DATA "WHY ARE YOU CONCERNED ABOUT MY?"
2080 DATA "WHAT ABOUT YOUR CARE?"
2090 DATA "CAN YOU THINK OF A SPECIFIC EXAMPLE?"
2100 DATA "YES?"
2110 DATA "WHAT ARE YOU THINKING OF?"
2120 DATA "PROBALLY, ALWAYS?"
2130 DATA "DO YOU REALLY THINK SO?"
2140 DATA "BUT YOU ARE NOT SURE YOUR?"
2150 DATA "DO YOU DOUBT YOUR?"
2160 DATA "ON WHAT MAY?"
2170 DATA "WHAT RESEMBLANCE DO YOU SEE?"
2180 DATA "WHAT DOES THE SIMILARITY SUGGEST TO YOU?"
2190 DATA "WHAT OTHER CONNECTIONS DO YOU SEE?"
2200 DATA "COULD THERE REALLY BE SOME CONNECTION?"
2210 DATA "YOU SEEM QUITE POSITIVE."
2220 DATA "ARE YOU SURE?"
2230 DATA "I SEE."
2240 DATA "I UNDERSTAND."
2250 DATA "WHY DO YOU BRING UP THE TOPIC OF FRIENDS?"
2260 DATA "DO YOUR FRIENDS WORRY YOU?"
2270 DATA "DO YOUR FRIENDS PICK ON YOU?"
2280 DATA "ARE YOU SURE YOU HAVE ANY FRIENDS?"
2290 DATA "DO YOU IMPOSE ON YOUR FRIENDS?"
2300 DATA "PERHAPS YOUR LOVE FOR FRIENDS WORRIES YOU?"
2310 DATA "DO COMPUTERS WORRY YOU?"
2320 DATA "ARE YOU TALKING ABOUT ME IN PARTICULAR?"
2330 DATA "ARE YOU FRIGHTENED BY MACHINES?"
2340 DATA "WHY DO YOU MENTION COMPUTERS?"
2350 DATA "WHAT DO YOU THINK COMPUTERS HAVE TO DO WITH YOUR PROBLEM?"
2360 DATA "DON'T YOU THINK COMPUTERS CAN HELP PEOPLE?"
2370 DATA "WHAT IS IT ABOUT MACHINES THAT WORRIES YOU?"
2380 DATA "WHY, DO YOU HAVE ANY PSYCHOLOGICAL PROBLEMS?"
2390 DATA "WHAT DOES THAT SUGGEST TO YOU?"
2400 DATA "I SEE."
2410 DATA "I'M NOT SURE I UNDERSTAND YOU FULLY."
2420 DATA "COME COME ELUCIDATE YOUR THOUGHTS."
2430 DATA "CAN YOU ELABORATE ON THAT?"
2440 DATA "THAT IS QUITE INTERESTING."
2500 REM
2510 REM ---- REPLY FINDING DATA ----
2520 REM
2530 DATA 1,3,4,2,8,4,4,4,10,4,14,3,17,3,20,2,22,2,25,2
2540 DATA 28,4,28,4,32,3,35,5,40,4,40,9,40,9,40,9,40,9
2550 DATA 49,2,51,4,55,4,59,4,63,1,67,1,69,5,69,5,73,2,75,4
2560 DATA 80,3,83,7,90,3,93,6,99,7,104,4

```

```

H1: I'm Eliza. What is your problem?
? I'm an IBM 370
D18 YOU COME TO ME BECAUSE YOU ARE AN IBM 370
? YES I WANT A NEW LINE PRINTER
WHAT WOULD IT MEAN IF YOU GOT A NEW LINE PRINTER
? ABOUT 1200 LPM
BAY, DO YOU HAVE ANY PSYCHOLOGICAL PROBLEMS?
? HOW WOULD YOU KNOW YOU'RE A SPECTRAVIDEED
WHAT MAKES YOU THINK I AM A SPECTRAVIDEED
? IT SAYS SO ABOVE YOUR KEYBOARD
WHY ARE YOU CONCERNED ABOUT MY KEYBOARD
? CAUSE THAT IS WHAT I'M TYPING ON
HOW LONG HAVE YOU BEEN TYPING ON
? SINCE I TYPED RUN
WHAT DOES THAT SUGGEST TO YOU?
? YOU'RE THE SHRINK
DOES IT PLEASE YOU TO BELIEVE THAT I AM THE SHRINK
? DON'T YOU KNOW
ME WERE DISCUSSING YOU-- NOT ME.
? I AM BEGINNING TO WONDER ABOUT YOU
D18 YOU COME TO ME BECAUSE YOU ARE BEGINNING TO WONDER ABOUT I
? I DIDN'T START TO WONDER ABOUT YOU UNTIL AFTER I CAME TO YOU

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Lost & Forgotten Island

Lost & Forgotten Island was passed along to us by Ken Modest of Texas Instruments and converted to Microsoft Basic by Jeffrey Yess. It first appeared in *Creative Computing*, March 1983.

Lost & Forgotten Island is a game of survival for one to three players. Unlike other similar games, to survive requires cooperation and joint decision-making among players.

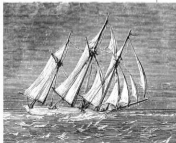
In the scenario, you and all the other players have been shipwrecked and are now stranded on a remote island in the Pacific Ocean. Also on the island is a pirate's cache of buried treasure and, of course, your damaged ship. To complicate matters, a typhoon is approaching.

On each turn, each player must make a decision as to whether to do repair work on the ship or to dig for gold. The longer you remain on the island collecting treasure, the higher the risk that the typhoon will catch up with your ship when you leave the island.

In addition to your race against the approaching typhoon, you will encounter other problems—mainly injuries from mishandling your tools or explosives. You may trade tools among players for either other tools or gold. Certain tools will perform two functions, although using a tool for the wrong function will diminish its ability to perform its main function. For

example, using an axe to dig dulls it and makes it less useful for cutting down trees for ship repairs.

There are several ways in which the game can end, some of which are not at all pleasant. But with persistence, sensible decisions, and cooperation among players, you can all make it back to safety with enough gold to buy a fleet of Rolls Royces. Good Luck!



Lost & Forgotten Island

10 REM-LOST AND FORGOTTEN ISLAND

20 REM-REV. 4/2/84

30 DIM T\$(12),T\$(13),S\$,T\$(13,13),V\$(13,1),V\$(13,1),M\$(13),C\$(14)

40 DIM W\$(13,1),F\$(13,1),C\$(13,1),J\$(13),M\$(13),G\$(13),G\$(14)

50 DIM M\$(13),M\$(13)

60 REM INSTRUCTIONS

70 REM ADAPTED FROM "COMPUTERS AND SOCIETY" VOL. 7-NO. 3,FALL,1976

80 PRINT"WELCOME TO THE LOST AND FORGOTTEN ISLAND "

90 PRINT"WOULD YOU LIKE SOME INSTRUCTIONS",

100 INPUT S\$

110 IF S\$="YES" THEN G=1

120 IF S\$="NO" THEN G=0

130 PRINT"INVALID ANSWER. PLEASE RETYPE YES OR NO"

140 GOTO 100

150 PRINT"LOST AND FORGOTTEN ISLAND IS A SURVIVAL GAME BASED ON"

160 PRINT"COOPERATION. IT CONTAINS A HISTORY OF LIFE'S VALUES."

170 PRINT"IMAGINE."

180 PRINT" YOU HAVE BEEN SHIPWRECKED ON A REMOTE ISLAND."

190 PRINT"YOU MAKE THE CHOICE OF DIGGING FOR GOLD AND/OR BUILDINGS"

200 PRINT"A SHIP TO SURVIVE THE APPROACHING HURRICANE."

210 PRINT"CAN YOU SURVIVE? IF SO, WITH HOW MUCH GOLD?"

220 PRINT

230 PRINT" GOOD LUCK"

240 PRINT

250 T\$=MOD(I)

260 FOR J=1 TO 3

270 FOR K=1 TO 9

280 T\$(1,3)=#

290 T\$(2,3)=#

300 W\$(1,3)=#

310 W\$(2,3)=#

320 NEXT K

330 NEXT J

340 FOR I=1 TO 10

350 S\$(1)=#

360 NEXT I

370 FOR I=1 TO 4

380 M\$(1)=#

390 C\$(1)=#

400 G\$(1)=#

410 C\$(1)=#

420 C\$(1)=#

430 NEXT I

440 M\$(1)= "STORAGE"

450 FOR S=0 TO 3

460 READ S\$(1)

470 NEXT S

480 PRINT

490 REM NUMBER OF PLAYERS

500 PRINT"HOW MANY PEOPLE (1/3/3) ARE PLAYING?"

510 FOR S=1 TO 3

520 FORB=1 TO 9

530 T\$(B),M\$(B)=#

540 NEXT B

550 NEXT S

560 INPUT N\$

570 PRINT

580 IF N\$=1 THEN G=3

590 IF N\$=2 THEN G=2

600 PRINT"YOU MUST PLAY WITH 1,2 OR 3 PLAYERS"

610 PRINT

620 GOTO 500

630 S=#

640 FOR H\$=1 TO 1

650 G\$(H)=#

660 C\$(H)=#

670 C\$(H)=#

680 M\$(H)=#

690 NEXT H

700 C2=#

710 FOR J=1 TO 9

720 PRINT"PLAYER ".I."WHAT NAME ARE YOU USING?"

730 INPUT M\$(1)

740 PRINT

750 FOR J=1 TO 3

760 IF J=1 THEN S1#

770 IF M\$(1)<>M\$(2) THEN S1#

780 PRINT"SOMEONE ELSE ALREADY HAS THIS NAME SO PLEASE CHOOSE ANOTHER "



Lost & Forgotten Island

```
700 PRINT
800 GOTO 730
910 NEXT J
920 NEXT I
930 FORU3=I*100
940 FOR B4=I*100
950 T2(03,B4)=I
960 T2(03,B4)=T2(03,B4)*4-100
970 NEXT B4
980 NEXT I3
990 GOTO
990 FOR B=I*100
910 T2(1,3)=I
920 NEXT I
930 T2(1,3)=2
940 T2(2,7)=I
950 T2(2,8)=I
960 T2(2,9)=2
970 B=B-90
980 FOR B=I*100
990 FOR J=I*100
1000 B1=INT(RND(1)*9+1)
1010 T2(1,3)=B1
1020 V1(1,3)=T2(1,B1)
1030 V2(1,3)=T2(2,B1)
1040 NEXT J
1050 C1(1)=INT(RND(1)*11+2)
1060 NEXT I
1070 GOSUB 1110
1080 DATA"AXE","CHISEL","HAMMER","NAILS AND SCREWS","SAP"
1090 DATA"LEMBUR","SHOVEL","FOURAKE","EXPLOSIVES"
1100 STOP
1110 REM SUBROUTINE LAF1001
1120 REM THIS IS LAF10 23
1130 REM TRADING TOOLS
1140 IF N1=0 THEN 1240
1150 IF N1=0 THEN 1170
1160 M(3)="STORAGE"
1170 J(1)="A"
1180 J(2)="ANOTHER"
1190 FOR I=3 TO 9
1200 J(1)=J(1)+I
1210 NEXT I
1220 J(1)="WHO (USE NAME ONLY PLEASE) WISHED TO TRADE"
1230 J(2)="WHO ELSE WISHED TO TRADE"
1240 B=4
1250 FOR B=I*100
1260 REM MESH DART
1270 PRINT"THIS IS DAY ",M
1280 PRINT
1290 GOSUB 1090
1300 PRINT
1310 PRINT
1320 IFC=I*1000 2070
1330 IFC=I*100000
1340 B=0-1
1350 PRINT"THE STORM IS ABOUT TO HIT"
1360 PRINT
1370 IF N1=I*100000
1380 GOTO1430
1390 IFC=I*100000
1400 B=INT(RND(1)*4+1)
1410 IFC=4*I*100000
1420 B=3
1430 IF N1=I*100000
1440 PRINT"DO ANY OF YOU WISH TO TRADE TOOLS",
1450 INPUTA
1460 PRINT
1470 IF A$="YES"THEN1520
1480 IFC=I*100000
1490 PRINT"PLEASE TRY AGAIN. YOU MUST ANSWER YES OR NO."
1500 PRINT
1510 GOTO 1430
1520 FOR I=I*100
1530 FOR J=I*100
1540 T2(1,3)=T2(1,3)
1550 T2(1,3)=T2(1,3)
1560 T2(1,3)=T2(1,3)
```



Lost & Forgotten Island

```
1570 NEXT J
1580 G2(1)=G1(1)
1590 NEXT I
1600 FOR L=1 TO 3
1610 M3(1)=1
1620 NEXT J
1630 FOR I=1 TO 2
1640 PRINT$(1);
1650 INPUT$(1);
1660 PRINT
1670 IF$(1)=M3(1) THEN L=2
1680 IF$(1)=M3(2) THEN L=2
1690 IF$(1)=M3(3) THEN L=2
1700 PRINT"YOU MUST ANSWER WITH 'Y',M3(1)', OR 'N',M3(1)
1710 PRINT" PLEASE TRY AGAIN
1720 PRINT
1730 GOTO 1640
1740 M3(1)=M3(1)+1
1750 M3(2)=M3(1)+1
1760 NEXT J
1770 FOR I=1 TO 2
1780 M4=1
1790 PRINT$(1);", ARE YOU GIVING ANY GOLD IN THIS TRADE";
1800 INPUT$(1);
1810 PRINT
1820 IF$(1)="Y" THEN M4=2
1830 IF$(1)="NO" THEN M4=2
1840 IF$(1)="YES" THEN M4=2
1850 IF$(1)="N" THEN M4=2
1860 PRINT"PLEASE TRY AGAIN. YOU MUST ANSWER YES, NO, Y
1870 PRINT" & (TO CALL OFF THE TRADE), OR Y (TO SEE THE LIST OF"
1880 PRINT"TOOLS WHICH EVERYONE HAD BEFORE THE START OF THIS TRADE).";
1890 PRINT
1900 GOTO 1790
1910 PRINT"YOUR SITUATION AT THIS TIME
1920 PRINT
1930 GOSUB 4840
1940 GOTO 1790
1950 PRINT$(1);", HOW MUCH GOLD (IN DOLLARS) ARE YOU GOING TO GIVE";
1960 INPUT$(1);
1970 PRINT
1980 IF G1(M3(1))>=0 THEN M4=2
1990 PRINT"YOU MAY NOT GIVE MORE THAN YOU HAVE ('G1(M3(1))') DOLLARS"
2000 PRINT
2010 GOTO 1950
2020 IF A?=>0 THEN M4=2
2030 PRINT"YOU MAY NOT INPUT A NEGATIVE NUMBER. TRY AGAIN."
2040 GOTO 1950
2050 GOTO 1950
2060 G2(M3(1))=G1(M3(1))-A?
2070 G2(M3(2))=G1(M3(2))-1/4*A?
2080 PRINT$(1);", ARE YOU GIVING A(NY) TOOL(S) IN THIS TRADE";
2090 INPUT$(1);
2100 PRINT
2110 IF$(1)="Y" THEN M4=2
2120 IF$(1)="NO" THEN M4=2
2130 IF$(1)="YES" THEN M4=2
2140 IF$(1)="N" THEN M4=2
2150 PRINT"TRY AGAIN. ANSWER YES, NO, Y OR Y"
2160 PRINT
2170 GOTO 2080
2180 PRINT"YOUR SITUATION AT THIS TIME";
2190 PRINT
2200 GOSUB 4840
2210 GOTO 2080
2220 PRINT$(1);", HOW MANY TOOLS ARE YOU GIVING";
2230 INPUT$(1);
2240 PRINT
2250 FOR J=1 TO 5
2260 PRINT$(1);", WHAT IS THE NAME OF 'J$(J)' TOOL THAT ";
2270 PRINT"YOU ARE GIVING IN TRADE";
2280 INPUT$(1);
2290 PRINT
2300 IF$(1)=J THEN M4=2
2310 IF$(1)="N" THEN M4=2
2320 IF$(1)="Y" THEN M4=2
2330 FOR K=1 TO 5
2340 IF$(1)=J THEN M4=2
```



Lost & Forgotten Island

```
235# NEXT B
236# PRINT"PLEASE USE THE NAME OF THE TOOL. USE B IF YOU WANT TO"
237# PRINT"GO AHEAD WITH THE TRADE WITHOUT GIVING MORE TOOLS."
238# PRINT"USE T IF YOU WANT TO SEE THE LIST OF TOOLS EVERYONE"
239# PRINT"HAD BEFORE THIS TRADE STARTED."
240# PRINT"OR USE X IF YOU WANT TO CALL OFF THE TRADE."
241# PRINT
242# GOTO228#
243# FORB=1TO9
244# IFD<(M%I),K)=# THEN 257#
245# NEXT K
246# PRINTB%I;","; YOU DO NOT HAVE THIS TOOL. PLEASE TRY AGAIN."
247# PRINT"YOU MUST USE THE NAME OF A TOOL YOU HAVE, USE B TO GO"
248# PRINT"AGAIN WITH THE TRADE WITHOUT GIVING MORE TOOLS, USE B"
249# PRINT"TO CALL OFF THE TRADE. OR USE T TO SEE THE LIST OF TOOLS WHICH "
250# PRINT"EVERYONE HAD BEFORE THE START OF THIS TRADE."
251# PRINT
252# GOTO 228#
253# PRINT"YOUR SITUATION AT THIS TIME"
254# PRINT
255# COSUB 48#
256# GOTO 228#
257# T%(M%I),E)=1#
258# V%(M%I),E)=#
259# W%(M%I),E)=#
260# FOR L=NDOS
261# IF T%(M%I)-L)=L)-1#THEN63#
262# NEXT L
263# T%(M%I)-L)=L)=#
264# W%(M%I)-L)=L)=W%(M%I),E)
265# W%(M%I)-L)=L)=W%(M%I),E)
266# M%I=L
267# NEXT J
268# NEXT I
269# PRINT"THIS IS YOUR LAST CHANCE TO CALL OFF THE TRADE. IF YOU"
270# PRINT"WANT TO CALL IT OFF TYPE B. OTHERWISE TYPE ANY OTHER LETTER AFTER"
271# PRINT"THE QUESTION MARK."
272# INPUTC
273# PRINT
274# IF C#="X"THEN63#
275# FOR I=1TO3
276# FOR J=1TO9
277# C%(I,J)=T%(I,J)
278# W%(I,J)=W%(I,J)
279# V%(I,J)=V%(I,J)
280# NEXT J
281# NEXT I
282# NEXT B
283# PRINT"DO ANY TWO OF YOU WANT TO TRADE NOW?";
284# INPUT B#
285# PRINT
286# IFB#="YES"THEN 152#
287# IFB#="NO"THEN21#
288# PRINT"PLEASE TRY AGAIN. YOU MUST ANSWER YES OR NO.
289# PRINT
290# GOTO 283#
291# FOR I=1TO9
292# IFC%(I)=0THEN294#
293# P=C%(I)
294# REM WHAT TYPE OF WORK TODAY?
295# PRINTB%I;","; WHAT ARE YOU GOING TO WORK ON TODAY?";
296# INPUT A#
297# PRINT
298# IFA#="BOAT"THEN317#
299# IFA#="GOLD"THEN37#
300# PRINT"PLEASE ANSWER BOAT IF YOU WANT TO WORK ON THE BOAT"
301# PRINT"OR GOLD IF YOU WANT TO MINE GOLD."
302# PRINT
303# GOTO 285#
304# REM MORNING ON SOME GOLD
305# FOR J=1TO9
306# IFT%(J,2)<1THEN32#
307# PRINTB%I;","; DO YOU WANT TO USE THE AXE TO MINE GOLD?";
308# PRINT"REMEMBER THAT THE AXE DROPS GREATLY IN VALUE"
309# PRINT"IF IT IS USED TO MINE GOLD."
310# INPUTC#
311# PRINT
312# IFC#="NO"THEN 32#
```



Lost & Forgotten Island

```
313# IFCS=YES THEN 317#
314# PRINT PLEASE TRY AGAIN. YOU MUST USE YES OR NO."
315# PRINT
316# GOTO 317#
317# V2(I,3)=V2(I,2)
318# R1=V2+V2(I,3)*C1(I)
319# V1(I,3)=V1(I,2)+R1*(1+V1(I,3)/10)
320# V2(I,3)=#
321# GOTO 323#
322# R1=R1+V2(I,3)*C1(I)
323# NEXT I
324# S=SUM(I)*2+1
325# S=1
326# IF C(S)=1 THEN 334#
327# C=S
328# IF C<>1 THEN 334#
329# C=S-25
330# C=C+25
331# S=S+10*22#*V1
332# PRINT M(I)," HAS JUST MADE ".INT(S)," DOLLARS MORE GOLD."
333# G1(R)=C1(I)+25
334# PRINT
335# GOTO 353#
337# REM WORKING ON THE BOAT
338# R(I)=1
339# FOR J=1000
340# IF T(I,1)<>2 THEN 346#
341# FOR K=1 TO 9
342# IF T(I,K)<>3 THEN 345#
343# P=V1+2*V1(I,1)*C1(I)
344# GOTO 347#
345# NEXT K
346# P1=V1+V1(I,1)*C1(I)
347# NEXT J
348# S=P1/10
349# PRINT M(I)," HAS EARNED ".INT(S)," MORE MORE POINTS "
350# NEXT I
351# M1=M(I)+S
352# C2=C2+S
353# Y=INT(RND*(1+V1+C1(I)+1))
354# FOR J=1000
355# IF T(I,1)=1 THEN 358#
356# IF T(I,1)=2 THEN 358#
357# IF T(I,1)<>3 THEN 364#
358# S=Y+C2+1,3 THEN 358#
359# PRINT M(I)," HAS BEEN INJURED BY THE ".T(T(I,1))." BIG/BER"
360# PRINT TOOL PROFICIENCY WILL NOW BE CUT IN HALF."
361# PRINT
362# C1(I)=INT(C1(I)/2)+5)
363# J=J
364# IF T(I,1)<>3 THEN 366#
365# IF T(I,1)=3 THEN 366#
366# PRINT M(I)," HAS BEEN KILLED IN THE ACCIDENTAL"
367# PRINT "DISCHARGE OF SOME OF THE EXPLOSIVES PLEASE"
368# PRINT "NOTIFY HIS/HER FRIENDS AND RELATIVES IF YOU MAKE IT BACK."
369# PRINT
370# C(I)=1
371# IF T=1 THEN 374#
372# M(I)="STORAGE"
373# S=1
374# G(I)=#
375# G2(I)=#
376# IF M=1 THEN 377#
377# FOR S=1 TO 9
378# IF T(I,S)=1 THEN 381#
379# R3=INT(RND*(M1+1))
380# IF R3=1 THEN 383#
381# FOR L=1 TO 9
382# IF T(I,R3,L)=1 THEN 383#
383# T(I,R3,L)=T(I,K)
384# V1(R3,L)=V1(I,K)
385# V2(R3,L)=V2(I,K)
386# T(I,K)=1
387# V1(I,K)=#
388# V2(I,K)=#
389# L=L
390# NEXT L
391# NEXT S
392# NEXT I
```



Lost & Forgotten Island

```
1000 J=0
1010 NEXT J
1020 NEXT I
1030 NEXT M
1040 GOSUB 1000
1050 GOSUB 4100
1060 REM THE FOLLOWING IS THE SUBROUTINE STATE
1070 FOR I=0T05
4000 FOR J=0T05
4010 T1(I,J)=T2(I,J)
4020 NEXT J
4030 NEXT I
4040 C4=C2
4050 FOR #=1T01
4060 PRINT
4070 PRINT
4080 IF C1(0)=1 THEN M20
4090 IF C2<># THEN M410
4100 C0=1
4110 B=INT((M10)/C2)*100+.5)
4120 PRINT#(M10); " HAS ",INT(C1(0)); " DOLLARS WORTH OF GOLD, A TOOL"
4130 PRINT#PROFICIENCY OF "(C1(0), ",INT(M1(0)); " MORE POINTS, WHICH"
4140 PRINT"IS ".B," PERCENT OF THE TOTAL, AND THE FOLLOWING TOOLS:"
4150 PRINT
4160 FOR J2=1T05
4170 K0=" "
4180 IF T2(0,J2)=-1 THEN M4100
4190 IF T2(0,J2)=T3(0,J2) THEN M4110
4200 K0="*"
4210 PRINT#TAB(8);K0;T3(2)(0,J2);
4220 NEXT J2
4230 PRINT
4240 PRINT"JUST HIT RETURN WHEN YOU ARE READY TO GO ON.";
4250 INPUT #0
4260 PRINT
4270 NEXT #
4280 PRINT
4290 PRINT"THE SON OF EVERYONE'S MORE POINTS IS ",INT(C4);". "
4300 PRINT
4310 C3=C4
4320 RETURN
4330 DATA"AXE","CHISEL","HAMMER","NAILS AND SCREWS","SAW"
4340 DATA"LOBBED","SHOVEL","PICKAXE","EXPLOSIVES"
4350 RETURN
4360 REM SUBROUTINE LAPIS 10
4370 DEF FNC(12)=2.718**I
4380 DEF FNC(10)=FNC(10)+FNC(10)
4390 DEF FNC(11)=FNC(11)+FNC(11)
4400 C4=C2
4410 IF C1<># THEN M4410
4420 C3=C1
4430 IF T1=1 THEN M4450
4440 C4=C0
4450 FOR I=1T01
4460 IF C3(1)=1 THEN M4480
4470 FNC(1)/C2+.25 THEN M449
4480 C4=C0#M(1)
4490 NEXT I
4500 FOR I=0T0 N1
4510 IF C3(1)=1 THEN M4520
4520 PRINT
4530 PRINT
4540 REM THE RESULTS
4550 PRINT
4560 PRINT"THE RESULTS FOR ",M4(1);". "
4570 PRINT
4580 PRINT
4590 IF M4(1)/C1<.25 THEN M4610
4600 M1(1)=C4
4610 Z1=INT(60**2.718**(1-M1(1)/C1))
4620 C2=INT(50**1+4*(FNC(17)-M1(1))/9.5)/FNC(17-M1(1)/9.5(1))
4630 C3=INT(50**1+4*(FNC(14)-M1(1))/9.5)/FNC(14-M1(1)/9.5(1))
4640 D0=INT(IND(1)*101)
4650 IF D(1)<>1 THEN M4650
4660 IF D0<1 THEN M4660
4670 PRINT#PROPER CONDOLENCES WILL BE SENT TO THE FRIENDS"
4680 PRINT#AND RELATIVES OF", M4(1); " WHO DROPPED DURING"
4690 PRINT"YOUR OWN URGES. "
```



Lost & Forgotten Island

```
4500 FOR I=1 TO 61
4510 IF C%(I)=1 THEN GOTO 4520
4520 PRINT
4530 PRINT
4540 REM THE RESULTS
4550 PRINT
4560 PRINT"THE RESULTS FOR ",N%(I),"."
4570 PRINT
4580 PRINT
4590 IF N%(I)/C%(I) > 20 THEN GOTO 4610
4600 NEXT I
4610 D=INT(50*2.718**(1-4*(N%(I)/C%(I)))
4620 E=INT(50*(1+(1-(F%*(1-4*(N%(I)/C%(I))))*(2.5+1-(F%*(1-4*(N%(I)/C%(I))))
4630 D=INT(50*(1+(F%*(1-4*(N%(I)/C%(I))))*(2.5+1-(F%*(1-4*(N%(I)/C%(I))))
4640 N=INT(50*(1+(N%)))
4650 IF N% < 0 THEN GOTO 4680
4660 IF N% < 1 THEN GOTO 4680
4670 PRINT"PROPER CONDOLENCES WILL BE SENT TO THE FRIENDS"
4680 PRINT"AND RELATIVES OF", N%(I), " WHO DROPPED BEHIND"
4690 PRINT"TYphoon URSULA ."
4700 GOTO 4820
4710 IF N% < 2 THEN GOTO 4740
4720 PRINTN%(I), ". YOU MADE IT BACK TO HONOLULU BUT A"
4730 PRINT"LARGE WAVE WASHED YOUR GOLD OVERBOARD. SORRY."
4740 GOTO 4820
4750 IF N% < 3 THEN GOTO 4780
4760 PRINTN%(I), ". YOU MADE IT BACK BUT THE BOAT NEARLY SWAMPED."
4770 PRINT"SO, HALF OF YOUR GOLD WAS THROWN OVERBOARD."
4780 PRINT"THIS MEANS YOU HAVE",INT(C%(I)/2),
4790 PRINT" DOLLARS WORTH OF GOLD LEFT."
4800 GOTO 4820
4810 PRINTN%(I), ". CONGRATULATIONS ."
4820 PRINT"YOU MADE IT WITH ALL YOUR GOLD.",INT(C%(I)),
4830 PRINT" DOLLARS WORTH."
4840 GOTO 4820
4850 IF N% < 4 THEN GOTO 4880
4860 PRINTN%(I), ". DID NOT GET OFF THE ISLAND AND WAS"
4870 PRINT"KILLED BY TYphoon URSULA."
4880 GOTO 4820
4890 PRINTN%(I), ". YOU SURVIVED TYphoon URSULA, BUT LOST ALL YOUR GOLD"
4900 PRINT"AND SHOULD START MAKING MORE SIGNALS BECAUSE YOU WERE"
4910 PRINT"LEFT BEHIND."
4920 NEXT I
4930 PRINT
4940 PRINT"DO YOU WANT TO PLAY ANOTHER GAME",
4950 INPUT C%
4960 PRINT
4970 PRINT
4980 PRINT
4990 PRINT
5000 PRINT"*****"
5010 PRINT
5020 IF C%="NO" THEN GOTO 5050
5030 IF C%="YES" THEN GOTO 5040
5040 PRINT"YOU MUST ANSWER YES OR NO. PLEASE TRY AGAIN."
5050 PRINT
5060 GOTO 4940
5070 RETURN
5080 END
```



WELCOME TO THE LOST AND FORGOTTEN ISLAND.
WOULD YOU LIKE SOME INSTRUCTIONS? YES
LOST AND FORGOTTEN ISLAND IS A SURVIVAL GAME BASED ON
COOPERATION. IT CONTAINS A MIXTURE OF LIFE'S RAISERS.
IMAGINE:
YOU HAVE BEEN SHIPWRECKED ON A REMOTE ISLAND.
HELP TO SURVIVE THE APPROACHING HURRICANE.
CAN YOU SURVIVE? IF SO, WITH HOW MUCH GOLD?

GOOD LUCK

```
HOW MANY PEOPLE (1/2/3) ARE PLAYING? 2
PLAYER 1 WHAT NAME ARE YOU USING? OWEN
PLAYER 2 WHAT NAME ARE YOU USING? BOB
```

THIS IS DAY 1

OWEN HAS 8 DOLLARS WORTH OF GOLD, A TOOL
PROFICIENCY OF 10, 8 MORE POINTS, WHICH
IS 8 PERCENT OF THE TOTAL, AND THE FOLLOWING TOOLS:

JUST HIT RETURN WHEN YOU ARE READY TO GO ON.

BOB HAS 8 DOLLARS WORTH OF GOLD, A TOOL
PROFICIENCY OF 10, 8 MORE POINTS, WHICH
IS 8 PERCENT OF THE TOTAL, AND THE FOLLOWING TOOLS:

Lost & Forgotten Island

JUST HIT RETURN WHEN YOU ARE READY TO GO ON.?

THE SUM OF EVERYONE'S WORK POINTS IS 8 .

DO ANY OF YOU WISH TO TRADE TOOLS? NO

OWEN, WHAT ARE YOU GOING TO WORK ON TODAY? GOLD

OWEN HAS JUST MADE 1000 DOLLARS MORE GOLD.

RUSS, WHAT ARE YOU GOING TO WORK ON TODAY? BOAT

RUSS HAS EARNED 1 MORE WORK POINTS.

THIS IS DAY 3

OWEN HAS 1000 DOLLARS WORTH OF GOLD, A TOOL PROFICIENCY OF 13 , 8 MORE POINTS, WHICH IS 8 PERCENT OF THE TOTAL, AND THE FOLLOWING TOOLS:

JUST HIT RETURN WHEN YOU ARE READY TO GO ON.?

RUSS HAS 8 DOLLARS WORTH OF GOLD, A TOOL PROFICIENCY OF 13 , 2 MORE POINTS, WHICH IS 10% PERCENT OF THE TOTAL, AND THE FOLLOWING TOOLS:

JUST HIT RETURN WHEN YOU ARE READY TO GO ON.?

THE SUM OF EVERYONE'S WORK POINTS IS 9 .

DO ANY OF YOU WISH TO TRADE TOOLS?

JUST HIT RETURN WHEN YOU ARE READY TO GO ON.?

RUSS HAS 8 DOLLARS WORTH OF GOLD, A TOOL PROFICIENCY OF 13 , 1 MORE POINTS, WHICH IS 10% PERCENT OF THE TOTAL, AND THE FOLLOWING TOOLS:

JUST HIT RETURN WHEN YOU ARE READY TO GO ON.?

THE SUM OF EVERYONE'S WORK POINTS IS 10 .

DO ANY OF YOU WISH TO TRADE TOOLS? YES

WHO (GIVE NAME ONLY PLEASE) WISHES TO TRADE? OWEN

WHO ELSE WISHES TO TRADE? RUSS

OWEN, ARE YOU GIVING ANY GOLD IN THIS TRADE? NO

OWEN, ARE YOU GIVING A(H) TOOL(S) IN THIS TRADE? YES

OWEN, HOW MANY TOOLS ARE YOU GIVING? 1

OWEN, WHAT IS THE NAME OF A TOOL THAT YOU ARE GIVING IN TRADE? AXE

OWEN, YOU DO NOT HAVE THIS TOOL. PLEASE TRY AGAIN. YOU MUST USE THE NAME OF A TOOL YOU HAVE. USE B TO GO AHEAD WITH THE TRADE WITHOUT GIVING MORE TOOLS. USE X TO CALL OFF THE TRADE, OR USE ? TO SEE THE LIST OF TOOLS WHICH EVERYONE HAS BEFORE THE START OF THIS TRADE.

OWEN, WHAT IS THE NAME OF A TOOL THAT YOU ARE GIVING IN TRADE? X

DO ANY TWO OF YOU WISH TO TRADE SOM? NO

OWEN, WHAT ARE YOU GOING TO WORK ON TODAY? GOLD

OWEN HAS JUST MADE 1000 DOLLARS MORE GOLD.

RUSS, WHAT ARE YOU GOING TO WORK ON TODAY? BOAT

RUSS HAS EARNED 1 MORE WORK POINTS.

THIS IS DAY 3

OWEN HAS 1000 DOLLARS WORTH OF GOLD, A TOOL PROFICIENCY OF 13 , 8 MORE POINTS, WHICH IS 8 PERCENT OF THE TOTAL, AND THE FOLLOWING TOOLS:

Monster Combat

Monster Combat was written by Lee E. Chapel and originally appeared in *Creative Computing*, February 1981.

Monster Combat is a game in which you wander around a forest and encounter various monsters. Your objective is to win as much treasure from each encounter as possible and, of course, not get killed in the process.

Play of the Game

When you play the game you will be randomly placed in a forest ten by ten squares in size. Only one of these squares (the one you are in) is displayed, thus allowing you to see only a small part of the forest at a time. The sector you are in is again divided into ten by ten squares. Each of these, too, is divided up to ten by ten squares. Each of these little squares is shown by a single character. It covers an area of forest ten by ten yards, making the fuller square that is displayed a hundred by a hundred yards and the entire forest a thousand by a thousand yards. T's are trees, ~ are paths, P's are



walls, @'s are irms, and M's are enchanted castles. The "0" is you.

Also displayed with the portion of forest you are in is your combat strength, treasure total, and the various magic spells you have. Your combat strength is used to fight the various monsters you meet, each monster having a combat strength of his own; these range from five (for a goblin) to a hundred (for a basilisk). Your combat strength is also used in movement, the amount used depending upon how far you go, how much treasure you're lugging around, and the type of terrain you end up on after you move.

At the irms you are allowed to regain the strength you began with and all the magic you had at the start. Don't worry when you find yourself displayed in the square below the irms when you stop there; that is the way the program is set up. Of course, the innkeeper takes some of your treasure for providing you with his services. However, sometimes he has information which he passes on to you at no additional cost—like where the forest edge is, or where an enchanted castle might be found.

There may be up to fifteen enchanted castles in the forest. These usually contain items of great value

to treasure hunters, as you will see. (However, they tend to vanish if you make the wrong move, such as falling into a pit when you land on the castle square.)

Most of the time you will not be visiting inns and castles. You will be hacking your way through thick underbrush or trotting along forest paths in search of treasure. And you will find it, usually guarded by some sort of monster. Upon encountering one or more of these creatures you are given a choice of fighting them, running away, bribing them, or casting a spell on them.

To fight you must hit a "1"; then, when it asks you to, you enter however much of your combat strength you wish to use against the monster. If you choose to use strength equal to the monster's strength you then have a fifty-fifty chance of winning. The more strength you use the greater the odds are of winning, the less you use the smaller your odds of winning. Also affecting what you use to fight the monster is your treasure total. The more treasure you have the more strength you must use.

Sample Run

The first and third parts of the sample run give examples of fighting a monster or monsters. In the first case there are three cyclopes. Cyclopes have a combat strength of 20, which means that three of them have a total strength of 60. I used 121 of my combat strength to fight them, over twice the cyclopes' strength, which gave me over a 95% chance of winning. And, as can be seen in the example, I did beat him.

In the third part of the sample run I am fighting 19 goblins. Since goblins have a combat strength of 5, 19 have a combined strength of 95. I used only 60 combat points that time, giving me around a 30% chance of winning. And, as can be seen in the example, I did get myself killed.

Playing Strategy

If you do not wish to fight the monster you can always run. However, the higher the strength of the monster the less likely you will get away and the more likely that you will be forced to fight. Whether or not you do get away is based upon a random number and the strength of the monster. If you do get away you are randomly placed in an adjacent square and get to find out what is there. Once in a while, when you attempt to run, the monster catches you and kills you.

If you don't care to run or fight, you can try to bribe the monster. Few people like to do this since it means handing over some of your hard-earned treasure. Whether your bribe is accepted or not depends

upon how much treasure the monster is guarding, his strength, and a random number. The greater the value of the treasure the monster has, the more you'll have to pay him if you don't care to fight. Usually if the monster doesn't care for your bribe you have to fight him. Sometimes, though, he just kills you anyway.

Finally, if you don't care for any of the previous choices, you may cast a spell. There are three types of spells: sleep, charms, and invisibility. Sleep spells tend to be the least effective and invisibility the most effective, with charms somewhere in the middle. Spells, no matter what kind they are, don't always work too well, sometimes not working at all, thus causing you to have to fight the monster.

In addition to the various monsters, there are other things you will occasionally run into; some are good and some bad, as you will see when you run the program. Everything is determined randomly and thus you can go back to a spot where you were previously and find something different there.

You have thirty days to hunt for treasure in the forest. Each little square you move through takes a tenth of a day to cross, meaning it takes an entire day to cross the entire displayed square. To move, you enter the direction you wish to go (N meaning North, which is upwards, S meaning South, E meaning East, which is to the right, and W meaning West). Then you enter the distance, each little square being one. For example, in the first part of the sample run, I enter S (south) for the direction and then 3 for the distance. This places me on top of the arrow, which is an inn, and thus I am shown in the square below the inn when the next map of the area is drawn. In moving from the inn I again go south, this time a distance of 7, which causes me to end up in the next large square.

When you leave the forest, intentionally or accidentally, you can obtain a listing of the number of monsters you've killed, bribed, and run from, plus the amount of treasure you have won so far. If you decide not to return to the forest or your thirty days are up, you are offered several choices: you may go to a new forest with the same strength and magic (the treasure total going back to zero); you may go to a new forest with new strength and magic; or you can stop playing the game. If you should wish to use the strength and magic left over from the game you just played, you can obtain a listing of these at the very end of the game and then write them down or store them, however you wish. Then, the next time you play the game, you just answer the initial question with a "Y" and then enter the various things you are asked for.

As of this writing, the record treasure total is 7562, set by the author. Most of the time the scores run between 1000 and 2000, with many lower and a few higher. If you get above 2,000 you're doing well.

The following is a description of each monster, giving its combat strength and telling something about the tales and myths surrounding it.

Goblin (3)—A mischievous little sprite only about a yard in height. Rather ugly, uses coarse and uncouth language, is generally evil and malicious; all in all, a rather unpleasant little fellow. Even though they're little they can be very vicious, and more than one warrior has had been killed underestimating them.

Minotaur (10)—From Greek mythology, a monster with the head of a bull and the body of a man. Minos, king of Crete, received a bull from Poseidon, god of the sea, which he refused to sacrifice to the god. Poseidon inspired an unnatural love for the bull in Pasiphae, Minos' wife, and the minotaur resulted from the union. Minos enclosed the creature in a labyrinth constructed in the city of Knossos, and fed it seven young men and women (whom Athens had to pay as tribute to Crete) every few years. The original minotaur was eventually slain by the Athenian hero Theseus.

Cyclops (20)—Also from Greek mythology, a member of a race of one-eyed giants. According to Homer, the cyclopes were shepherds living on an island in the western area. The best known of these was Polyphemus, who had his eye poked out by the hero, Odysseus. According to Hesiod, the cyclopes were three of the children of Uranus and Gaia. They forged the thunderbolt for Zeus, king of the gods, and became the assistants of Hephaestus, god of the forge.

Zombie (30)—From legends in the West Indies, a corpse which has been reanimated. A rather unpleasant person to meet, he generally smells of rot and decay. He often has rotting pieces of himself falling off his body, yet never seems to fall apart completely. He is difficult to kill, since he is already dead. A person has to chop him into tiny pieces and then get away before the monster can pull himself back together.

Giant (40)—Appears in the mythology of almost all nations, huge beings of terrible aspect. In the Greek myths the giants are said to live in volcanic regions where they were banished after an unsuccessful war against the gods. Some giants are peaceful, but others, like the ones in the forest, would think nothing of having you or anyone else for a snack.

Harpy (50)—From Greek mythology, disgusting women with the wings and lower body of a bird, generally a bird of prey. They stole and befouled the food

of blind Phineus as punishment from the gods. Phineus nearly died before Jason and the Argonauts arrived while sailing in search of the Golden Fleece. Two of the Argonauts, Zetes and Calais drove the harpies away and were then told by one of the gods that the harpies would bother Phineus no more. The harpies continued their disgusting practices elsewhere.

Gargoyle (60)—From Eastern mythology, a creature usually represented as having the head, beak, and wings of an eagle, and the body and legs of a lion. It builds its nest of gold, making it very tempting to hunters and forcing the griffin to keep vigilant guard. It instinctively knows where buried treasure is hidden and does its best to keep any plunderers at a distance.

Chimera (70)—From Greek mythology, a monster with the foreparts of a lion, the rearparts of a goat with a goat's head in the middle of its back, and with a serpent for a tail. The original chimera was slain by Bellerophon, who was riding on Pegasus, the winged horse. Ironically, Pegasus was a distant relative of the chimera.

Dragon (80)—Found in many of the world's mythologies, a reptile monster resembling a giant lizard and usually represented as having wings, huge claws, and a fiery breath. In some places the dragon is considered to be a peaceful creature, notably in Japan and China, where it is regarded as a symbol of good fortune. However, the dragons in the forest are of the other sort; they will kill and eat you if you let them, and they take very unkindly to anyone trying to steal their treasure.

Wyvern (90)—A distant relative of the dragon, this is a fabulous two-legged creature, with wings and head of a dragon on a basilisk's body. Although he cannot kill you with one glance like the basilisk, he is still a very unpleasant creature to meet.

Basilisk (100)—The worst of all eleven monsters, his deadly glare kills anyone who gazes upon his face. From Greek mythology, the basilisk was called the king of serpents, being endowed with a scaly crest upon his head like a crown. This monster was supposedly produced from the egg of a cock hatched under toads or serpents. The worst, the only animal which can withstand the basilisk's glare, often fought it to the death. Humans must use a mirror if they wish to be assured of victory over a basilisk, for the mirror will reflect the creature's gaze back upon it and kill it. This monster is not to be confused with the basilisk of South America, a harmless lizard with the ability to run across water.

Monster Combat

CAN'T DO

```
10 RANDOMIZE
20 REM "GIANT MONSTER ATTACK"
30 REM BY LEE J. CHAPPEL 5/1/1980
40 REM MICROSOFT VERSION BY CHRIS VOGEL
50 PRINT "*** GIANT MONSTER ATTACK ***"
60 DIM B(10,10),S(10,10),T(10,10),M(10,10),TR(10,10),F(10,10)
70 DIM C(10),D(10)
80 FOR I=1 TO 10 : READ M(I),T(I),S(I),F(I) : NEXT I
90 W=INT(RND(1)*2)
100 C=INT(RND(1)*1000+500) : S=INT(RND(1)*6) : M=INT(RND(1)*8)
110 G(1)="SLEEP SPELL" : G(2)="CHARM" : G(3)="IMMORTALITY SPELL"
120 PRINT:PRINT "DO YOU WISH TO USE THE STRENGTH AND WISDOM FROM A?"
130 INPUT "PREVIOUS GAME (Y OR N) YES I FIGHT IF YES" THEN GOTO
140 DHC I GSY I SE=0 FIVE I PRINT"PLEASE WAIT"
150 FOR I=1 TO 10 : FOR J=1 TO 10
160 T=INT(RND(1)*10) : IF T<3 OR C<15 THEN T=0
170 M=INT(RND(1)*2) : M=INT(RND(1)*10) : P=INT(RND(1)*20)
180 A(1,1)=10000+1000P+10000H
190 IF T=1 THEN C=C+1 : C=C*H : C=C*H
200 NEXT J : NEXT I : T=0
210 X=INT(RND(1)*80+2) : Y=INT(RND(1)*10+2)
220 X=INT(RND(1)*80+1) : Y=INT(RND(1)*10+1)
230 IF X<0 OR X<100 OR Y<0 OR Y<100 THEN GOTO
240 FOR I=0 TO 10 : FOR J=1 TO 10 : B(I,1)=0 : NEXT J : NEXT I
250 C=INT(C*(X1,1)/10000) : P=INT(C*(X1,1)/10000*(X2,1)/1000)
260 M=INT(C*(X1,1)/10000*(X1-1000P)/100)
270 H=(X1,1)/10000*(X1-1000P-1000P) : I=0 : J=0
280 IF C=0 THEN I=INT(RND(1)*10+1) : J=INT(RND(1)*10+1) : B(I,1)=0
290 IF C=0 AND I=0 AND J=0 THEN B(I,1)=0 : GOTO 300
300 IF H=0 THEN I=INT(RND(1)*10+1) : J=INT(RND(1)*10+1)
310 IF H=0 AND B(I,1)=0 THEN GOTO
320 IF H=0 THEN B(I,1)=0
330 B(X,1)=S : IF S=0 THEN GOTO
340 FOR I=0 TO 9
350 J=INT(RND(1)*10+1) : K=INT(RND(1)*10+1)
360 IF B(I,1)=0 THEN GOTO
370 B(I,1)=2 : NEXT I
380 IF P=0 THEN GOTO
390 FOR I=1 TO P
400 J=INT(RND(1)*10+1) : K=INT(RND(1)*10+1)
410 IF B(I,1)=0 THEN GOTO
420 B(I,1)=1 : NEXT I
430 FOR I=1 TO 10 : FOR J=1 TO 10
440 IF B(I,1)=0 THEN PRINT "0"
450 IF B(I,1)=1 THEN PRINT "1"
460 IF B(I,1)=2 THEN PRINT "2"
470 IF B(I,1)=3 THEN PRINT "3"
480 IF B(I,1)=4 THEN PRINT "4"
490 IF B(I,1)=5 THEN PRINT "5"
500 IF B(I,1)=7 THEN PRINT "7"
510 NEXT J : PRINT TAB(30) ; C(1)
520 IF I=0 THEN PRINT "COMBAT STRENGTH=" : PRINT TAB(10) ; C(1)
530 IF I=1 THEN PRINT "TREASURE TOTAL=" : PRINT TAB(10) ; C(1)
540 IF I=4 THEN PRINT "WISDOM"
550 IF I=5 THEN PRINT "SLEEP SPELLS=" : PRINT TAB(10) ; C(1)
560 IF I=6 THEN PRINT "CHARMS=" : PRINT TAB(10) ; C(1)
570 IF I=7 THEN PRINT "IMMORTALITY=" : PRINT TAB(10) ; C(1)
580 IF I=8 THEN PRINT "DAYS IN FOREST=" : PRINT TAB(10) ; C(1)
590 IF I=9 THEN PRINT "DAYS IN FOREST=" : PRINT TAB(10) ; C(1)
600 IF I=9 THEN PRINT "DAYS IN FOREST=" : PRINT TAB(10) ; C(1)
610 IF I=9 THEN PRINT "DAYS IN FOREST=" : PRINT TAB(10) ; C(1)
620 IF I=9 THEN PRINT "DAYS IN FOREST=" : PRINT TAB(10) ; C(1)
630 IF I=9 THEN PRINT "DAYS IN FOREST=" : PRINT TAB(10) ; C(1)
640 IF I=9 THEN PRINT "DAYS IN FOREST=" : PRINT TAB(10) ; C(1)
650 IF I=9 THEN PRINT "DAYS IN FOREST=" : PRINT TAB(10) ; C(1)
660 IF I=9 THEN PRINT "DAYS IN FOREST=" : PRINT TAB(10) ; C(1)
670 IF I=9 THEN PRINT "DAYS IN FOREST=" : PRINT TAB(10) ; C(1)
680 J=INT(RND(1)*100+1) : N1=0 : IF J=0 THEN J=1 : N1=0
690 IF J=1 THEN M=N1 : PRINT "A "M" IS CHARGING"
700 IF J=2 THEN M=N1+5 : PRINT "I" "M" ARE GUARDING"
710 M=N1+J : S=INT(RND(1)*14+1)
720 IF I=0 AND J=0 THEN GOTO
730 IF I=0 AND J=100 THEN PRINT "NOTHING IS GUARDING"
740 IF I=0 THEN GOTO
750 IF I=0 THEN PRINT "NOTHING" : P=0 : GOTO
760 PRINT T(I) : P(I)
770 IF M=N1 AND N1=0 THEN GOTO
780 IF J=100 THEN PRINT "YOU GET THE TREASURE FREE" : GOTO 1100
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Monster Combat

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770 PRINT "DO YOU WISH TO FIGHT? (TYPE 1 TO FIGHT, 0 TO QUIT)"
800 INPUT "CAST A SPELL?"
810 IF K=1 OR K=4 THEN 770
820 ON K GOTO 800,760,1000,1440
830 INPUT "HOW MANY COMBAT POINTS DO YOU WISH TO USE?"
840 IF K=2 THEN PRINT "YOU ONLY HAVE"K" COMBAT POINTS" : GOTO 800
850 I=INT(RND(10)/100)+1 : L=2 : C=C+I : H=H-1040
860 FOR H=1000 TO 0 STEP -50
870 IF L=0 AND K=1 THEN 1170
880 L=L-1 : NEXT H
890 PRINT "THE "HMM" KILLED YOU. "
900 PRINT "YOU LOSE EVERYTHING!"
910 INPUT "WISH TO TRY AGAIN (Y OR N)?" : PRINT
920 IF H="Y" THEN 800
930 PRINT "PRINT "SO LONG... BETTER LUCK NEXT TIME" : END
940 I=INT(RND(10)/10)+1 : IF I=1 THEN 800
950 FOR H=0 TO 50 : IF H=100+H AND K=1 THEN 770
960 NEXT H : GOTO 1000
970 A=1 : B=Y : H=0 : T=0 : C=INT(RND(1)/21)+.001+0.5
980 H=INT(RND(1)/10)+1 : Y=INT(RND(1)/10)+1
990 IF H=4 AND Y=0 THEN 900
1000 B=B+1 : IF B=10 THEN B=1 : B=1+1 : K=0
1010 IF B=1 THEN Y=1 : Y=1+1 : K=1
1020 IF B=1 THEN B=10 : B=1+1 : K=1
1030 IF Y=1 THEN Y=10 : Y=1+1 : K=1
1040 IF B=1,Y=1 AND H=0 THEN 900
1050 K=1-INT(RND(1)/10)+1 : B=Y+5 : IF K=1 THEN B=2+1
1060 IF K=1 THEN 200
1070 GOTO 610
1080 INPUT "HOW MUCH DO YOU WISH TO PAY?"
1090 IF K=0 THEN PRINT "YOU ONLY HAVE"00" TREASURE POINTS." : GOTO 1000
1100 I=INT(RND(1)/10)+1 : L=1 : IF I=1 OR I=10 AND K=1 THEN 900
1110 J=INT(RND(1)/10)+1 : IF K=2 THEN 1140
1120 FOR H=0 TO 50 : IF H=100+H AND L=0 THEN 1140
1130 L=L-1 : NEXT H : GOTO 1000
1140 PRINT "YOUR BRIDE WAS NOT ACCEPTED."
1150 PRINT "YOU MUST FIGHT" : GOTO 800
1160 H=1 : B=0 : K=0 : H=H+1 : T=0 : PRINT "YOUR BRIDE WAS ACCEPTED." : GOTO 1240
1170 H=1-INT(RND(1)/10)
1180 PRINT "YOU BEAT THE "HMM"
1190 IF K=2 THEN I=INT(RND(1)/10)+1 : IF I=0 THEN 2100
1200 IF J=100 THEN I=INT(RND(1)/5)+1 : IF I=0 THEN 2200
1210 GOTO 610
1220 IF H=0 THEN 1900
1230 IF T=0 AND T=0 THEN H=0+1 : GOTO 2250
1240 PRINT "YOU NOW HAVE"10" TREASURE POINTS."
1250 IF H=200 THEN 1900
1260 IF T=0 THEN GOTO 2250
1270 INPUT "WHICH DIRECTION WOULD YOU LIKE TO GO?"
1280 IF H="1" THEN T=0 : GOTO 400
1290 T=0 : INPUT "WHAT DISTANCE?" : IF K=INT(T) THEN 1270
1300 GOTO 2500
1310 A=1+1 : B=Y+1 : H=1 : B=Y : C=C-INT(1.5*(RND(1)/10))
1320 IF LEFT(STR$(C),1)="0" THEN Y=Y-1
1330 IF LEFT(STR$(C),1)="1" THEN Y=Y+1
1340 IF RIGHT(STR$(C),1)="0" THEN B=B+1
1350 IF RIGHT(STR$(C),1)="1" THEN B=B-1
1360 IF B=0 THEN B=10 : B=B+1 : IF B=10 THEN 1060
1370 IF B=1 THEN B=0+10 : B=B+1 : IF B=1 THEN 1070
1380 IF Y=0 THEN Y=10+10 : Y=Y+1 : IF Y=0 THEN 1080
1390 IF Y=1 THEN Y=0+10 : Y=Y+1 : IF Y=1 THEN 1090
1400 IF B=1,Y=1 THEN C=C-5
1410 IF B=1,Y=0 THEN C=C-10
1420 IF C=0 THEN PRINT "YOU DIED FROM LACK OF STRENGTH." : GOTO 900
1430 IF B=C=0 OR Y=C=0 THEN 200
1440 IF B=1,Y=0 THEN B=0
1450 IF B=1,Y=1 THEN B=10
1460 IF B=1,Y=0 THEN 2500
1470 B=1-INT(RND(1)/10)+1 : B=Y+5 : GOTO 400
1480 PRINT "YOU TRIED TO GO THROUGH A WALL."
1490 C=INT(RND(1)/10)+.001+25 : H=4 : Y=0 : GOTO 1000
1500 Y=Y+1 : C=0 : B=1-INT(RND(1)/10)+1 : B=Y+5 : T=1 : H=0
1510 H=1 : B=1 : C=1 : GOTO 400
1520 PRINT "YOU STOPPED AT AN INN AND REGAINED YOUR STRENGTH"
1530 I=INT(RND(1)/10)+.75 : IF I=0 AND C=0 THEN I=5
1540 IF I=0 AND C=0 THEN I=0
1550 PRINT "YOU PAID"10" TREASURE POINTS TO BUY THERE" : C=C-1
1560 PRINT "YOU NOW HAVE"10" TREASURE POINTS"
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1510

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1570 I=INT(RND*(1+0)) : IF I=0 THEN 1270
1580 IF I=1 THEN GOSUB 2570 : GOTO 1270
1590 I=INT(RND*(1+4))
1600 PRINT "THE IMMORTAL TOLD YOU THAT THE FOREST EDGE IS LESS THAN"
1610 GOTO 1270
1620 PRINT "Y=1000"YARDS TO THE NORTH" : GOTO 1270
1630 PRINT "X=1000"YARDS TO THE SOUTH" : GOTO 1270
1640 PRINT "Z=1000"YARDS TO THE WEST" : GOTO 1270
1650 PRINT "W=1000"YARDS TO THE EAST" : GOTO 1270
1660 IF T=0 THEN PRINT "YOU CAN'T USE MAGIC TO GET MAGIC" : GOTO 790
1670 IF S=0 THEN PRINT "YOU HAVE NO MAGIC" : GOTO 790
1680 PRINT "WHAT TYPE OF SPELL-1(SLEEP), 2(SLOW), OR 3(INVISIBILITY)?"
1690 INPUT K : PRINT : IF K=1 OR K=2 THEN 1640
1700 ON K GOTO 1710,1720,1730
1710 IF S=0 THEN PRINT "YOU HAVE NO SLEEP SPELLS." : GOTO 1150
1720 IF S=1 THEN PRINT "YOU CAN'T PUT "MAGIC" TO SLEEP." : S=S+1 : GOTO 1150
1730 I=INT(RND*(1+10)) : S=S-1
1740 IF I=0 THEN PRINT "YOUR SPELL WAS UNSUCCESSFUL." : GOTO 1150
1750 IF I=10 THEN PRINT "YOU GOT THE TREASURE MAPS!" : GOTO 1150
1760 PRINT "THE "MAGIC" WORE TOO SOON"
1770 P=INT(RND*(1+4)) : S=S+P
1780 PRINT "YOU GOT AWAY WITH "P" TREASURE POINTS" : GOTO 1270
1790 IF S=0 THEN PRINT "YOU HAVE NO MAGIC." : GOTO 1150
1800 I=INT(RND*(1+10)) : S=S-1
1810 IF S=0 AND I=0 THEN PRINT "YOUR CHARM DIDN'T WORK." : GOTO 1150
1820 IF S=0 AND I=1 THEN PRINT "YOUR CHARM DIDN'T WORK." : GOTO 1150
1830 IF I=0 THEN PRINT "THE CHARM WORE OFF TOO SOON." : GOTO 1770
1840 I=0 : GOTO 1730
1850 IF S=0 THEN PRINT "YOU HAVE NO INVISIBILITY SPELLS." : GOTO 1150
1860 I=INT(RND*(1+10)) : S=S-1
1870 IF S=0 AND I=0 THEN PRINT "THE "MAGIC" SLEPT YOU" : GOTO 1770
1880 IF S=0 AND I=1 THEN PRINT "YOUR INVISIBILITY WORE OFF TOO SOON" : GOTO 1770
1890 GOTO 1240
1900 I=INT(RND*(1+2)) : I=0 : GOTO 1910,1920
1910 C=ASC C PRINT "YOU WON AN ENCHANTED SWORD, YOUR COMBAT STRENGTH "
1920 PRINT "IS DOUBLED AND IS NOW "C : GOTO 1240
1930 PRINT "YOU WON AN ORDINARY SWORD, YOUR COMBAT STRENGTH IS NOT"
1940 PRINT "DOUBLED AND REMAINS AT "C : GOTO 1240
1950 J=INT(RND*(1+10)) : I=INT(RND*(1+10))
1960 IF J=0 AND I=0 THEN PRINT : GOTO 1790
1970 IF I=1 THEN 2010
1980 GOTO 1260
1990 PRINT "THERE WAS A MIRROR ON THE CHEST, IT WILL PROTECT YOU"
2000 PRINT "WASGET ANY "MAGIC" TO YOU MAY MEET" : S=S+7 : GOTO 1270
2010 PRINT "THE TREASURE CHEST WAS A TRAP, YOU WERE KILLED WHEN "
2020 PRINT "YOU OPENED IT" : GOTO 700
2030 PRINT "YOUR MIRROR KILLED THE "M" : M=INT(RND*(1+1)) : R=0 : GOTO 1150
2040 PRINT "A GIANT HAS GRABBED YOU AND CARRIED YOU TO A NEW SPOT"
2050 A=0 : B=0 : T=0 : D=D+1,1
2060 I=INT(RND*(1+10)) : Y=INT(RND*(1+10)) : IF S=0, Y=0 THEN 2060
2070 S=ASC S-D*INT(RND*(1+3)) : S=S-Y*5 : GOTO 410
2080 PRINT "YOU FELL INTO A PIT." : I=INT(RND*(1+2)) : D=D+1
2090 IF C=0 THEN PRINT "YOU WERE TRYING TO GET OUT" : GOTO 700
2100 PRINT "YOU USED "I" COMBAT POINTS TRYING TO GET OUT" : I=I-I
2110 FOR J=0 TO 750 : NEXT J : GOTO 700
2120 J=0 : FOR I=0 TO 11 : J=J+1 : NEXT I : IF J=11 THEN 410
2130 PRINT "A GIANT WILL CARRIED YOU TO SAFETY."
2140 FOR I=0 TO 1000 : NEXT I : T=0 : GOTO 2040
2150 I=INT(RND*(1+10)) : M=ASC M : M=M+1 : M=INT(RND*(1+1))
2160 PRINT "A "M" HEARD THE NOISE OF THE BATTLE AND CAME WANDERING BY"
2170 IF I=1 AND M=7 THEN 2030
2180 INPUT "DO YOU WISH TO 1(FIGHT), 2(CURSE), 3(CAST A SPELL)?"
2190 IF K=1 OR K=3 THEN 2190
2200 ON K GOTO 230,240,1440
2210 I=INT(RND*(1+1)) : M=M+1 : M=INT(RND*(1+1)) : R=0
2220 PRINT "A "M" CAME WANDERING BY" : GOTO 2170
2230 IF I=14 THEN 790
2240 I=INT(RND*(1+4)) : T=T+5 : PRINT "A "100" : P=INT(RND*(1+10)) : GOTO 770
2250 I=INT(RND*(1+10))
2260 IF I=0 THEN PRINT "YOU WERE UNABLE TO MASTER THE SPELL."
2270 IF I=1 THEN PRINT "YOU GAIN NO "100" : GOTO 1270
2280 IF I=2 THEN S=S+1 : I=S+1
2290 IF I=3 THEN S=S+1 : I=S+1
2300 IF I=4 THEN S=S+1 : I=S+1
2310 PRINT "YOU WON THE "100" : I=0 : IF S=5+R*(3+5)/20 THEN GOSUB 3200
2320 GOTO 1270
2330 FOR A=0 TO 750 : NEXT A
2340 PRINT "YOU SURVIVED THE FOREST" : FOR I=0 TO 1000 : NEXT I
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2250 PRINT "DO YOU WISH TO SEE THE # OF MONSTERS YOU KILLED, HOW FROM."
2260 INPUT "AND BRIBED (Y OR N) THE I OF THE" THEN PRINT : GOTO 2420
2270 PRINT "MONSTER" TAB(11) "BLAIN" TAB(32) "MONSTER" TAB(43) "BLAIN"
2280 FOR I=0 TO 5 : PRINT PROC(1) TAB(14) "MILLI" TAB(32) "MILLI"
2290 PRINT TAB(46) "MILLI"
2300 NEXT I : PRINT TAB(32) "MILLI", TAB(46) "MILLI"
2310 PRINT : PRINT "BRIBED" TAB(14) "MILLI" TAB(32) "MILLI"
2320 PRINT TAB(10) "TREASURE TOTAL"
2330 IF G1=0 THEN GOSUB 2250
2340 IF "CONGRATULATIONS" I : IF G1=0 AND G2=0 THEN PRINT " WYHAT" : PRINT
2350 PRINT : GOTO 2420
2360 IF G2=0 THEN INPUT "DO YOU WISH TO RETURN TO THE FOREST"
2370 REM
2380 I=I+1 : M=M+1 : R=R+1 : C=C+1 : IF R=C+1 THEN GOTO 2380
2390 GOTO 2350
2400 D1=255*H/10 : IF D1=0 THEN 2410
2410 PRINT "YOUR TIME IS UP, 30 DAYS HAVE PASSED"
2420 FOR I=0 TO 1000 : NEXT I : GOTO 2120
2430 FOR I=0 TO 2500 : NEXT I : T=T+1
2440 PRINT "YOU MADE IT INTO THE ENCHANTED CASTLE"
2450 I=INT(RND(1)*255)+100 : J=INT(RND(1)*7) : S=1, Y1=0, X1=1000
2460 GOSUB 2700 : PRINT "YOU FOUND " TAB(10) "TREASURE POINTS THERE" : C=C+1
2470 IF J=0 OR J=7 THEN 2480
2480 PRINT "YOU ALSO FOUND A MIRROR WHICH WILL KILL ANY "
2490 PRINT "MILLI" "S" YOU MEET" : J=7
2500 J=INT(RND(1)*255) : IF J=0 THEN C=C+1
2510 IF J=0 THEN PRINT "YOU ALSO FOUND AN ENCHANTED SWORD WHICH DOUBLES "
2520 IF J=0 THEN PRINT "YOUR STRENGTH"
2530 FOR I=0 TO C-1 : IF C1=C2 THEN 2650
2540 FOR J=0 TO C-1 : C1=J+1 : C2=J+1 : D1=0 : D2=0 : NEXT J
2550 NEXT I : C=C+1 : IF C=C+1 THEN PRINT "YOU FOUND THE LAST OF THE CASTLES"
2560 RETURN
2570 IF C=C+1 THEN RETURN
2580 I=INT(RND(1)*255)+10
2590 PRINT "THE TAKEEYER TOLD YOU OF A LEGEND OF A CASTLE."
2600 IF C1=0 AND D1=0 THEN PRINT "VERY CLOSE BY" : RETURN
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2710 J=01-C:01 + I=01-D:11
2720 IF 0001=0001:0 THEN PRINT "CORRECTLY TO THE "I" : GOTO 2740
2730 PRINT "NOWHERE TO THE "I
2740 IF 1=0 THEN PRINT "NORTH"
2750 IF 1=0 THEN PRINT "WEST"
2760 IF 1=0 THEN PRINT "EAST"
2770 IF 1=0 THEN PRINT "SOUTH"
2780 PRINT : RETURN
2790 END
2800 I=INT(RND*11+1)
2810 ON I GOTO 2820, 2840, 2840, 2890, 2920, 2950, 2970, 2990, 3000, 3020, 3050
2820 PRINT "YOU STEPPED INTO A TRAP AND LOST SEVEN DAYS"
2830 D1=D1+7 : RETURN
2840 I=INT(RND*11+1) + J=01 + D=D1+1 : IF D1<1 THEN DIM:1 : I=J-D1
2850 PRINT "YOU STEPPED INTO A TRAP AND GAINED"11" DAYS" : RETURN
2860 IF C=0 THEN RETURN
2870 PRINT "YOU MET AN ELF WITH A MAGIC DRINK THAT SAVE"
2880 PRINT "YOUR COMBAT STRENGTH BACK" : C=D : RETURN
2890 IF V=0:0=0+R1+0 THEN RETURN
2900 PRINT "YOU SAW INTO A WIZARD WHO GAVE YOU A POTION THAT"
2910 PRINT "RESTORED ALL YOUR MAGIC" : V=V1 + R=0 : S=0 : RETURN
2920 IF 0=0 THEN RETURN
2930 PRINT "YOU FELL INTO SOME QUICKSAND, YOU LOST HALF OF YOUR"
2940 PRINT "TREASURE" : S=INT(S/2) : RETURN
2950 PRINT "YOU SAW INTO SOME THICK UNDERBUSH AND USED UP HALF"
2960 PRINT "YOUR STRENGTH" : C=INT(C/2) : RETURN
2970 I=INT(RND*11+0+1) : PRINT "YOU FOUND"11" COINS LYING ON THE"
2980 PRINT "GROUND AND PICKED THEM UP" : D=D+1 : RETURN
2990 IF 0=0 THEN RETURN
3000 PRINT "YOU STEPPED OVER SOME ROOTS AND LOST YOUR MIRROR" : M1=0 : RETURN
3010 PRINT "A HERMIT TOLD YOU THAT THERE AREN'T COIN CARDS LEFT" : RETURN
3020 IF 0=0 THEN RETURN
3030 PRINT "YOU WANDERED INTO AN AREA WHERE MAGIC DOESN'T WORK"
3040 PRINT "YOU LOSE ALL YOUR PRESENT MAGIC" : V=0 : D=0 : R=0 : RETURN
3050 IF 0=0 THEN RETURN
3060 PRINT "YOU MET A HUNTER WHO TOLD YOU OF THE LEGEND OF A"
3070 PRINT "HOSTILE "I" : I=INT(RND*11+0+1) : GOSUB 2700 : RETURN
3080 FOR I=1 TO 2000 : NEXT : PRINT
3090 PRINT "DO YOU WISH TO GO TO A NEW FOREST WITH THE SAME STRENGTH "I
3100 INPUT "AND MAGIC"11: IF 0=0 THEN GOTO
3110 PRINT "DO YOU WISH TO GO TO A NEW FOREST WITH A NEW STRENGTH AND "I
3120 INPUT "MAGIC"11: IF 0=0 THEN RUN
3130 PRINT "DO YOU PLAN ON USING THE SAME STRENGTH AND MAGIC AGAIN"
3140 INPUT "SOME OTHER TIME (Y OR N)"11: IF 0=0 THEN GOTO 3250
3150 PRINT : PRINT "WELL, YOU'VE GAINED YOUR TREASURE TOTAL, WEL"11
3160 IF 0=0 THEN GOTO
3170 IF 0=0 THEN PRINT "THE LARGEST TREASURE TOTAL YOU GOT WITH THIS"
3180 PRINT "STRENGTH AND MAGIC WAS"11: PRINT : PRINT " BYE NOW" : END
3190 0=0 + J=0 : D=D+1 : FOR I=1 TO 11 : R1=0 : NEXT I : IF 0=0 THEN GOTO
3200 0=0 : GOTO 140
3210 INPUT "COMBAT STRENGTH" C
3220 IF 0=0 OR C<2000 THEN GOTO
3230 INPUT "SLEEP SPELLS"11: INPUT "CHARMS"11: INPUT "INVISIBILITY"11
3240 INPUT "PREVIOUS LARGEST TREASURE TOTAL"11: GOTO 140
3250 IF 0=0 THEN PRINT "YOU WON MORE TREASURE THIS TIME THAN BEFORE"
3260 IF 0=0 THEN PRINT "YOU DIDN'T OBTAIN AS MUCH TREASURE THIS TIME"
3270 RETURN
3280 PRINT "YOUR MAGIC TOTAL IS EITHER LARGE, DO YOU WISH TO CONVERT IT TO"
3290 INPUT "COMBAT POINTS"11: IF 0=0 THEN RETURN
3300 S=S1+0 : R1=R1+0 : V1=V1+0 : IF 0=0 THEN GOTO
3310 IF 0=0 THEN RUN
3320 IF V1=0 THEN V1=1
3330 S=S1 + R=0 : V=0 : C=C+100 : D=D+100 : PRINT "YOUR COMBAT STRENGTH IS"
3340 PRINT "ACCELERATEDLY INCREASED BY 100" : RETURN
3350 PRINT "COMBAT STRENGTH"11: PRINT "SLEEP SPELLS"11: PRINT "CHARMS"11
3360 PRINT "INVISIBILITY"11: PRINT : RETURN
3370 DATA GOBLIN, 10 SILVER COINS (10 POINTS), 5, 10, MINOTUR
3380 DATA A SWORD WHICH MIGHT BE ENCHANTED (25 POINTS), 10, 25
3390 DATA 4 COINS, 50 SILVER COINS (50 POINTS), 20, 50, 20000
3400 DATA 100 GOLD PIECES (100 POINTS), 30, 100, 0100
3410 DATA AN ENCHANTED BRACELET (100 POINTS), 40, 50, 0000
3420 DATA A TREASURE CHEST (200 POINTS), 50, 200, 0000
3430 DATA A PEARL NECKLACE (50 POINTS), 60, 50, 0000
3440 DATA A JEWELLED SWORD (30 POINTS), 70, 30, 0000
3450 DATA A JEWELLED RING (75 POINTS), 80, 75, 0000
3460 DATA A BOX OF JEWELS (100 POINTS), 90, 100, 0000
3470 DATA A GOLD COIN (10 POINTS), 100, 50
3480 END
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-TTTTTTTT
T-T-TTTTT  COMBAT STRENGTH- 1704
TET-TTTTT  TREASURE TOTAL-  8
TTTTTTTTT  PROJECT
TTTTTTTTT  SLEEP SPELLS-  2
T-TTTTTTT  GAMES-  1
-TTTTTTTT  IMAGINABILITY-  1
TTTTTTTTT
TTTTTTTTT- DAYS IN FOREST-  1.5
TET-TT-TT
```

3 GOBLINS ARE GUARDING 100 GOLD PIECES (100 POINTS)
DO YOU WISH TO CLYFIGHT, (2)FIGHT, (3)GRAB, (4)DAMAGE, OR (5)CAST A SPELL?
HOW MANY COMBAT POINTS DO YOU WISH TO USE? 100
DO YOU WANT THE GOBLINS?
YOU NOW HAVE 100 TREASURE POINTS
WHICH DIRECTION (PRESS 1 FOR THE MAP)? 2
WANT DISTRACT? 2

```
-TTTTTTTT
T-T-TTTTT  COMBAT STRENGTH- 1702
TET-TTTTT  TREASURE TOTAL-  80
TTTTTTTTT  PROJECT
TTTTTTTTT  SLEEP SPELLS-  2
T-TTTTTTT  GAMES-  1
-TTTTTTTT  IMAGINABILITY-  1
TTTTTTTTT
TTTTTTTTT- DAYS IN FOREST-  1.5
TET-TT-TT
```

YOU STOPPED AT AN INN AND REPAIRED YOUR STRENGTH
YOU PAID 5 TREASURE POINTS TO STAY THERE
YOU NOW HAVE 95 IMAGINE POINTS
WHICH DIRECTION (PRESS 1 FOR THE MAP)? 2
WANT DISTRACT? 2

```
-TTTT-T-T
T----TET--  COMBAT STRENGTH- 1706
-T-T-TET--  TREASURE TOTAL-  85
-T-ET-T-T  PROJECT
T--ET--T  SLEEP SPELLS-  2
T----TET--  GAMES-  1
----T-T-T  IMAGINABILITY-  1
--TET--T  DAYS IN FOREST-  2.5
T-----TET
```

19 GOBLINS ARE GUARDING A JEWELLED BRAD (20 POINTS)
DO YOU WISH TO (1)FIGHT, (2)FIGHT, (3)GRAB, OR (4)CAST A SPELL?
HOW MANY COMBAT POINTS DO YOU WISH TO USE? 80
THE GOBLINS RILED YOU. YOU LOSE SUBSTANCE
DO YOU WISH TO TRY AGAIN?

SO LONG, BETTER LUCK NEXT TIME



Mu-Torere

Mu-Torere was written by Sandy Greenleaf and originally appeared in *Creative Computing*, August 1983.

I can't tell you how to pronounce it or what it means, but I know that Mu-Torere was played as late as 1912 by the Ngati-Porou tribe of the Maoris of the East Cape district of New Zealand. How's that for exotic origin! There appears to be some mystery about it. The fact that it was limited to one small corner of New Zealand suggests that it couldn't have been there very long, and that it must have been introduced by Europeans or by Polynesian seafarers. However, (according to an article in *Batafak*) no one has traced the game anywhere else.

The layout for Mu-Torere is a nine-pointed star (See Figure 1). The center circle is known as the *putahi*. The first player has four white stones which are initially placed at the ends of four adjacent arms of the star. The second player places four black stones at the ends of four adjacent arms. Players take alternate moves, playing one stone per move.

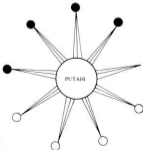


Figure 1. Normal Mu-Torere setup.



At any point in the game, there are three possible types of move:

1. Move sideways to the next arm if that point is vacant.
2. Move into the *putahi* if it is empty.
3. Move from the *putahi* to any unoccupied arm.

The game is won when an opponent is so placed that it is impossible to move any pieces. Despite the apparent simplicity, the game has a degree of subtlety that requires thinking ahead several moves in order to force the opponent into an unplayable position. One virtue of the game is its utter simplicity to create. It can be drawn on paper, sand, or almost anywhere.

Due to the ease of setup, I felt that a two-player version would be too simple and decided on a solitary version. Also, since it is boring to lose everytime, I did not program the computer to play perfectly. Several situational strategies are built into the program. The program will also recognize one-move forced wins and avoid certain forced-loss situations. If none of the specific strategies applies, the program will select an arbitrary move, in some cases good and in others bad. In other words, it plays like most humans.

In order to keep the program adaptable for most micros, the star was converted to a linear arrangement of numbered squares (See Figure 2). The *putahi* became the zero square and the nine points of the star became the numbered squares, one through nine. The parallel to the original rules is as follows:

1. Move sideways to the next adjacent number if vacant. (One should be considered adjacent to two and nine.)
2. Any number can move into zero, the *putahi*, if it is empty.
3. Zero can move into any unoccupied number.

The human plays "X" and the computer plays "O". You have the choice of moving first or second. Good luck.



Figure 2. Video screen setup for Mu-Torere.

Mu-Torere

```
10 REM *****
20 REM # MU-TORERE #
30 REM # In Microsoft BASIC #
40 REM *****
50 DEF FN P(X)=991-1000*X
60 DEF FN A(X)=FN P(X)
70 DEF FN B(X)=INT(10000/X)
80 GOTO 1000
90 REM ### Player's Move ###
100 PRINT:PRINT:FN(0) "Your move "
110 ##=1000/FN B(##) THEN 110
120 PRINT ##;" "LOWVAL(##)
130 ##=1000/FN B(##) THEN 130
140 PRINT ##;" "VAL(##):FN(##)
150 IF A(##)<1 OR A(##)>10 THEN 170
160 IF ##=0 OR ##=9 OR ##=10 OR ##=11 OR ##=12 OR ##=13 THEN 180
170 PRINT "Invalid move. Try again."GOTO 110
180 A(##)=B(A(##))
190 ##=1
200 GOSUB 1250
210 FN(##)=FN(##)+1
220 GOSUB 290
230 IF ##=10 THEN GOSUB 300
240 A(##)=A(##)+1
250 CLS:PRINT " My move: ";PRINT USING"###";PRINT ", ";PRINT USING"#####";GOSUB 1250:GOSUB 290
260 GOSUB 1250
270 GOTO 100
280 REM ### Computer's Move ###
290 IF A(1)<10 THEN ##=1:GOSUB 440
300 IF ##=1 THEN ##=0:RETURN
310 IF A(2)<10 THEN ##=2:GOSUB 440
320 OR A(3)<10 GOTO 390,340,310
330 REM ### If 0 Square is Empty ###
340 IF FN A(##+1)<1 OR FN A(##+2)<1 THEN 370
350 IF FN A(##+1)=1 THEN ##=FN P(##+1):RETURN
360 IF FN A(##+2)=1 THEN ##=FN P(##+2):RETURN
370 ##=##:IF FN A(##)=1 AND FN A(##-1) AND FN A(##-2) THEN ##=FN P(##):##=0
380 IF FN A(##)=1 AND FN A(##-1) AND ##=0 THEN ##=FN P(##):##=0
390 IF ##=0 THEN ##=0:RETURN
400 IF FN A(##)=1 AND FN A(##-1) AND FN A(##-2) THEN ##=FN P(##+1):##=0
410 IF FN A(##)=1 AND FN A(##-1) AND ##=0 THEN ##=0
420 IF ##=0 THEN ##=0:RETURN
430 ##=0
440 ##=1:IF 1<## THEN ##=1
450 IF A(1)<10 OR FN A(1)<10 THEN 440
460 IF FN A(1)=1 AND FN A(1)<10 THEN ##=FN P(1):RETURN
470 IF FN A(1)=1 AND FN A(1)<10 THEN ##=FN P(1):RETURN
480 IF ##=1 AND FN A(1)<10 THEN ##=0:RETURN
490 GOTO 440
500 REM ### If 0 Square Contains an 8
510 ##=1:GOSUB 490:IF ##=1 THEN ##=0:RETURN
520 ##=2:GOSUB 490:IF ##=1 THEN ##=0:RETURN
530 IF FN A(##)=1 AND FN A(##)<10 THEN ##=FN P(##):RETURN
540 IF FN A(##)=1 AND FN A(##)<10 THEN ##=FN P(##):RETURN
550 IF A(##)=1 AND FN A(##)<10 THEN ##=FN P(##):RETURN
560 IF ##=2 THEN ##=1:GOTO 530
570 ##=2:GOTO 530
580 REM ### If 0 Square Contains an 0
590 ##=1:GOSUB 730:IF ##=1 THEN ##=0:RETURN
600 ##=2:GOSUB 730:IF ##=1 THEN ##=0:RETURN
610 ##=3:GOSUB 730:IF ##=1 THEN ##=0:RETURN
620 ##=4:GOSUB 730:IF ##=1 THEN ##=0:RETURN
630 ##=5:GOSUB 730:IF ##=1 THEN ##=0:RETURN
640 ##=6:GOSUB 730:IF ##=1 THEN ##=0:RETURN
650 GOTO 530
660 IF FN A(##)=1 AND FN A(##-1) AND FN A(##-2) THEN ##=FN P(##):##=1:##=1:RETURN
670 IF FN A(##)=1 AND FN A(##-1) AND FN A(##-2) THEN ##=FN P(##):##=1:##=1:RETURN
680 RETURN
690 IF FN A(##)=1 AND FN A(##)=1 THEN ##=FN P(##+1):##=1:##=1:RETURN
700 IF FN A(##)=1 AND FN A(##)=1 THEN ##=FN P(##+1):##=1:##=1:RETURN
710 RETURN
720 IF FN A(##)=1 AND FN A(##-1) AND FN A(##-2) THEN ##=FN P(##):##=1:##=1:RETURN
730 IF FN A(##)=1 AND FN A(##)=1 AND FN A(##)=1 THEN ##=FN P(##):##=1:##=1:RETURN
740 RETURN
750 IF FN A(##)=1 AND FN A(##)=1 THEN ##=FN P(##):##=1:##=1:RETURN
760 RETURN
770 IF A(##)=0 OR A(##)=9 THEN RETURN
```

Mu-Torere

```
780 H=1:GOSUB 880:IF G THEN RETURN
790 H=2:GOSUB 880:IF G THEN RETURN
800 PRINT:PRINT:PRINT
810 BEEP:BEEP:BEEP
820 IF H=1 THEN PRINT "YOU WIN!"
830 IF H=2 THEN PRINT "THE COMPUTER WINS!"
840 PRINT:PRINT "Care to play again (Y or N)?"
850 A=INKEY$:IF A="" THEN 880
860 IF A="N" OR A="y" THEN CLS:END
870 RUN
880 G=0
890 IF A<<=P THEN G=1:RETURN
900 IF H=1 THEN SP A14-1--P THEN G=1:RETURN
910 IF H=2 THEN IF A14=1--P THEN G=1:RETURN
920 IF H=1 THEN IF A13=0 THEN G=1:RETURN
930 IF H=2 THEN IF A13=0 THEN G=1:RETURN
940 RETURN
950 H11=1:PRINT
960 FOR I=1 TO 9
970 PRINT TAB(44-I);
980 IF A11=1 THEN PRINT "X";
990 IF A11=2 THEN PRINT "O";
1000 IF A11=0 THEN PRINT " ";
1010 IF G=1 THEN RETURN
1020 NEXT I:RETURN
1030 DIM H(2),A(9)
1040 CLS:PRINT TAB(16)"MU-TORERE":PRINT
1050 PRINT " The object of the game is to make it impossible for your opponent to move."PRINT
1060 PRINT " There are 3 types of legal moves:"PRINT:PRINT " 1. Sideways to the next adjacent"
PRINT " squares (L and R are adjacent)"
1070 PRINT " 2. To G if G is empty:"PRINT " 3. From 0 to any unoccupied number"
1080 PRINT:PRINT " You and the computer take alternating moves until the game ends."
1090 PRINT:PRINT " To move, just press the number you're moving from and the number you are"
PRINT " moving to."
1100 PRINT:PRINT " You play 'X' and the computer plays 'O'."
1110 PRINT " Press any key to begin."
1120 A=INKEY$:IF A="" THEN 1120
1130 CLS:FOR I=1 TO 4:A11=1:A11+5=1:NEXT I
1140 A10=0:A10=0
1150 PRINT TAB(17); "X"PRINT TAB(17); "O"PRINT:PRINT:PRINT:FOR I=1 TO 9:PRINT I; " ";
NEXT I
1160 IF H=1 THEN H=2:RETURN
1170 GOSUB 780:GOSUB 790
1180 REM
1190 PRINT:PRINT:PRINT "Do you want to go first (Y or N)?"
1200 A=INKEY$:IF A="" THEN 1200
1210 PRINT:IF A="Y" AND H="Y" THEN 100
1220 H=1
1230 IF H=1:G:G THEN A=1+0:A(1)=1:G=0:GOTO 280
1240 X=P:Y=N:G=0:A(X)=0:A(O)=0:GOTO 280
1250 G=1:FOR I=0 TO 9:IF A(I)=0 THEN H(I)=1:G=1
1260 NEXT I:RETURN
```



Mu-Torere

MU-TORERE

The object of the game is to make it impossible for your opponent to move.

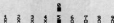
There are 3 types of legal moves:

1. Sideways to the next adjacent square (1 and 9 are adjacent)
2. To 2 if it is empty
3. From 8 to any unoccupied number

You and the computer take alternating moves until the game ends.

To move, just press the number you move from and the number you are moving to.

You play "X" and the computer plays "O".
Press any key to begin. ■

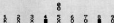


Do you want to go first (Y or N) ?

Your move: 4,5



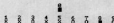
My move: 8,8



Your move: 3,4



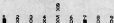
My move: 8,3



Your move: 1,8



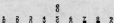
My move: 7,8



Your move: 8,1



My move: 8,8



THE COMPUTER WINS!

Come to play again (Y or N) ? ■

Presidential Campaign



Presidential Campaign was written by Ralph G. White and originally appeared in *Creative Computing*, October, 1988.

Presidential Campaign is a simulation of the nine month period leading up to a national presidential election. You must make decisions regarding issues, expenditures, travel, and other campaign activities. It is assumed that you are the chosen candidate of your party, and that there is no primary battle.

The country is divided into six regions:

The New England states

The upper midwest and middle Atlantic states

The southern states

The great plains states

The southwest states

The northwest and west coast states

Issue, party affiliation, campaign activities, etc. affect each group of states differently. Some actions have an equal effect on all states while others do not. Thus, some people will be more pleased than others with your approach to political issues whereas some of your decisions may be highly unpopular in some areas.

The incumbent initially gets a 10% edge. A routine to determine the popularity of the president then adjusts the figure accordingly. Party affiliation of the user also affects the initial conditions.

Not only do you get to choose whether to be the incumbent or challenger and whether to be a Democrat or Republican, but also to determine which of six different issues will be the most important issue to your campaign and which issue will be the least important. All of these decisions can influence the effectiveness to your campaign. Which issues are chosen most important and least important do not affect ini-

tial conditions.

You have nine months in which to campaign. Status in an individual state can be improved by either campaigning in the state or spending campaign money in it. The influence you and your money have in each state varies. The major factor is the number of electoral votes. The number of days campaigning or the amount of money spent is also of importance. It costs \$1100 per day to visit each state, however, some of the days you plan to be in a state can be designated for fund raising as well as campaigning. Fund raising does not help your popularity in a state, but it feeds the campaign treasury. Campaigning increases popularity, but depletes the treasury.

Aside from meeting campaign expenses, the money can be spent in each state to finance campaign committees. The maximum that can be spent in each state at one time is \$50,000. You are allowed to visit as many states as time and money allow. You can spend as much money each month as you can afford.

At the end of each month, you will be given a report on the balance of the campaign treasury at the beginning of the month and at the end, the contributions and expenditures for the month, and the results of a political poll which will show your popularity status for a state chosen at random.

Before the beginning of the next month, a political event will happen. How the event affects you depends upon the conditions you set forth at the beginning of the program. Some of the events require you to make a decision and the course of actions taken influences your status. At the end of the campaign, the program calculates the results, state by state, of the popular vote, although only the electoral vote is shown.

Presidential Campaign

```
10 REM *****
20 REM * THE PRESIDENTIAL CAMPAIGN *
30 REM * in Microsoft BASIC *
40 REM *****
50 CLEAR 500000:BT(1),I3
60 FN(1)="February":FN(2)="March":FN(3)="April":FN(4)="May"
70 FN(5)="June":FN(6)="July":FN(7)="August":FN(8)="September":FN(9)="October"
80 AM="Your campaign fund has $$$$,$$$,$$."
90 DM="$$$$,$$$,$$.00" "$$$,$$$,$$$,$$."
100 DM="Contributions = $$$$$,$$$,$$" Expenditures = $$$$$,$$$,$$
110 FOR I=1 TO 500T(3),I=500T(3),I=500NXT I
120 FOR I=1 TO 125T(1),I=500T(4),I=500NXT I
130 FOR I=1 TO 75T(2),I=500T(4),I=500NXT I
140 PR=500000
150 CLS:PRINT TAB(150);"** THE PRESIDENTIAL CAMPAIGN **"
160 PRINT:PRINT:INPUT "Please enter a number from 1 to 500:"N
170 IF N=1 OR N=500 THEN 160
180 FOR I=1 TO N:N=FN(I):N=I
190 FOR I=1 TO 200:N=I
200 GOTO 250
210 CLS
220 PRINT "Conditions":PRINT:PRINT
230 PRINT "Choose the conditions that you wish to:PRINT "be true."
240 PRINT "On what year do you wish the election":INPUT "To take place:(1)Y(2)M(3)E(4)I: IF Y=0 THEN 240
250 PRINT "That is not an election year."GOTO 240
270 INPUT "Enter your name":NM
280 INPUT "Enter your opponent's name":OB
290 PRINT:PRINT"Do you wish to be (1) the incumbent or(2)INPUT(2) the challenger?"
300 IF P1=0 OR P1>2 THEN 280
310 PRINT:PRINT"Do you wish to be (1) a Democrat or(2)INPUT(2) a Republican?"
320 IF P2=0 OR P2>2 THEN 310
330 FN=INT(RND*12)+100
340 IF P3=0 THEN P3=9
350 IF P3=10 AND P3=40 THEN P3=20
360 IF P3=30 AND P3=50 THEN P3=20
370 IF P3=60 AND P3=85 THEN P3=95
380 IF P3=90 THEN P3=0
390 FOR I=1 TO 6+C(P3)+P4:PRINT I
410 GOTO 250
420 C1="B+C(1)+6+C(2)+5+C(3)+5+C(4)+5+C(5)+6+C(6)+5"
430 IF P3=1 THEN 450
440 FOR I=1 TO 4+C1:=C1:PRINT I
450 GOTO 250
460 CLS:PRINT TAB(131);"S S U I E S:PRINT
470 PRINT "(1) Unemployment (4) Social Adjustments"
480 PRINT "(2) Inflation (5) Defense"
490 PRINT "(3) Energy (6) Foreign Affairs"
500 PRINT:PRINT"Which is most important to you:"INPUT "campaign":I1
510 IF I1=1 OR I1=4 OR I1=5<I1 THEN 500
520 INPUT"Which is least important":I2
530 IF I2=1 OR I2=4 OR I2=5<I2 THEN 500
540 FOR T=1 TO 4
550 CLS:PRINT"Date":FN(T):PRINT"-I(1):Months before election"
560 DR=50:TB=0
570 PRINT USING DR;$$;$$;$$;$$;$$;DR:PRINT
580 INPUT "What state do you wish to visit":V
590 PRINT "You have":I3=RN(1):"scheduled days":PRINT "left this month."
600 PRINT "How many days do you wish to stay":INPUT "there":Y
610 IF Y=0<Y THEN 600
620 N=Y+Y+Y
630 PRINT "How many of the":Y:"days will be:INPUT "for fund raising":F
640 INPUT "How many days for campaigning":OC
650 IF OC=0<F THEN 630
660 RESTORE
670 READ ST,EV,I,J
680 IF ST=""END THEN 710
690 PRINT "You did not spell the state correctly."
700 N=N+D-V+GOTO 600
710 IF ST=""V THEN 670
720 CE=INT(EV/100)+(F/20)+(CE+D-V+100+AM=CE+C1+D)=CM+CC+T=TB+CE
730 ST(I,J)=ST(I,J)+INT((100-ST(I,J)+D)/20)
740 IF N=0 THEN 760
750 PRINT"Do you wish to visit another":INPUT"state (yes/no)":D
760 Y=Y-LEFT(D,1):IF Y="" OR Y="" THEN 750
770 IF Y=""=Y AND Y="" THEN 750
780 CLS
```



Presidential Campaign

```

790 PRINT "Spend campaign money in which?"INPUT "state">S%
800 PRINT USING #4000
810 PRINT:INPUT "How much do you wish to spend?"A%
820 IF A%<=000000 THEN 840
830 PRINT "The most you can spend at a single"PRINT "time is 500,000."GOTO 810
840 IF A%>000000 THEN 850
850 IF A%<=A% THEN 860
860 A%=(A%-A%)/50000000
870 RESTORE
880 READ S%,EV,I,J
890 IF S%<="then" THEN 930
900 PRINT "You did not select the state correctly."
910 A%=-A%GOTO 810
920 IF S%<S% THEN 930
930 S%+I,J>=S%+J,PRINT 1+500-S%+I,J>A%#1000000000000000
940 IF A%<=0 THEN 960
950 PRINT "Do you wish to spend money in another?"INPUT "state (yes/no)"C%
960 A%=-A%IF C%<="Y" THEN 810 IF C%>="Y" THEN 960
970 IF C%>="Y" A%+J<=A% THEN 960
980 CLASSIFY "Monthly Report for the Election:"PRINT "Committee:"PRINT
990 PRINT "beginning of month"
1000 PRINT USING #4000000:PRINT
1010 PRINT USING #4000000:PRINT
1020 PRINT(ABS(1-J)/2+100):IF J<=0 THEN 1020
1030 RESTORE:FOR I=1 TO J:READ S%,EV,I,J:NEXT J
1040 IF S%+I,J>=500 THEN 1050
1050 IF S%+I,J>=0 THEN 1100
1060 PRINT:PRINT "Polls show you are even with:"J%
1070 PRINT "in" S%:J%:GOTO 1120
1080 PRINT:PRINT "Polls show you are ahead of:"J%
1090 PRINT "in" S%:J%:PRINT "You have"J%+I,J%":% of the vote."GOTO 1120
1100 PRINT:PRINT "Polls show"J%+I,J%":% ahead of you in"
1110 PRINT S%:J%:PRINT "He has"1+500-S%+I,J%":% of the vote."
1120 PRINT:INPUT "Press (ENTER) to begin next month"
1130 GOTO 810
1140 FOR Y=1 TO 5:ST1,0)=ST1,0)+ST1,0)-2):ST2,0)=ST2,0)+ST2,0)-2):NEXT Y
1150 FOR Y=1 TO 15:ST3,0)=ST3,0)+ST3,0)-2):ST4,0)=ST4,0)+ST4,0)-2):NEXT Y
1160 FOR Y=1 TO 10:ST5,0)=ST5,0)+ST5,0)-2):ST6,0)=ST6,0)+ST6,0)-2):NEXT Y
1170 INPUT "Press (ENTER)"
1180 NEXT Y
1190 CLASSIFY TAB(0):"Election Night Results"
1200 PRINT TAB(15):"Electoral Votes:"PRINT:PRINT TAB(25):"Your:"TAB(25):"Opponent:"
1210 PRINT "State:"TAB(35):"You:"TAB(35):"Opp.:"PRINT
1220 PRINT TAB(20):"Total:"TAB(35):"Total"
1230 RESTORE
1240 FOR H=1 TO 6
1250 READ S%,EV,I,J
1260 IF S%+I,J>=500 THEN 1290
1270 S%+I,J>=0:GOTO 1290
1280 Y%+H%#40
1290 PRINT S%:TAB(35):EV%:TAB(20):Y%:TAB(35):J%:J%
1300 FOR H=1 TO 7:NEXT TR
1310 NEXT Y
1320 IF Y%>=0 THEN 1340
1330 A%=(A%+A%)/2+2:GOTO 1320
1340 A%=(A%+A%)/2+2
1350 PRINT:PRINT A%": is the winner of the"EV%:PRINT "presidential election."
1360 PRINT A%": has"J%":electoral votes, more"J%:PRINT "than his opponent, "A%:"."
1370 END
1380 FOR I=1 TO 5:ST1,0)=ST1,0)+C(I):ST15,0)=ST15,0)+C(5):NEXT I
1390 FOR I=1 TO 15:ST2,0)=ST2,0)+C(I):ST24,0)=ST24,0)+C(14):NEXT I
1400 FOR I=1 TO 10:ST3,0)=ST3,0)+C(I):ST31,0)=ST31,0)+C(10):NEXT I
1410 RETURN
1420 P%=(INT(ABS(I+40)):IF P%>=1420
1430 IF P%<=1420
1440 PRINT "The U.S. is the target of"PRINT "demonstrations in several middle east"
1450 PRINT "countries. Several European countries"PRINT "have also been critical of"PRINT "our foreign
1460:)+C%
1460 IF P%<=1420 THEN C%=-1
1470 IF P%<=1420 THEN C%=-1
1480 IF I=4 THEN C%=-1
1490 IF I=2 THEN C%=-1
1500 FOR Y=1 TO 5:C(I)+C:NEXT Y
1510 GOSUB 1380
1520 GOTO 1290
1530 IF P%>=1420 THEN 1470
1540 I=1:IF INT(ABS(1+I))>=15 THEN I=2
1550 PRINT "The rate of inflation has")

```



Presidential Campaign



```
1540 IF 11=0 THEN END=0:GOTO 1550
1570 END=0:GOTO 1580
1580 PRINT "There is a shortage of all petroleum products, especially gasoline. The"
1590 PRINT "reasons for the shortage are unclear."PRINT "at this time."GOTO
1700 IF 11=0 THEN END=0
1710 IF 12=0 THEN END=0
1720 IF 13=0 THEN END=0
1730 FOR Y=1 TO 5:GOTO 1740:GOTO Y
1740 GOTO 1750
1750 GOTO 1760
1760 IF 14=0 THEN END=0
1770 PRINT "All allegations have been made that you PRINT have accepted illegal campaign funds."
PRINT "You are presently under investigation."
1870 IF 15=0 THEN 1900
1880 IF 16=0 THEN 1900
1890 PRINT "You have been found guilty and you PRINT lose 10% of your support"
1900 GOTO 1910
1910 PRINT "You have been found guilty and thrown PRINT in the federal penitentiary at PRINT Leavenworth, Kansas for twenty years."
1920 FOR Y=1 TO 10:GOTO 1930:GOTO Y:PRINT "You have been found guilty and thrown PRINT in the federal penitentiary at PRINT Leavenworth, Kansas for twenty years."
1930 GOTO Y
1940 FOR Y=1 TO 10:GOTO 1950:GOTO Y:PRINT "You have been found guilty and thrown PRINT in the federal penitentiary at PRINT Leavenworth, Kansas for twenty years."
1950 GOTO Y
1960 IF 17=0 THEN 2000
1970 PRINT "You and I agree to a televised debate."
1980 IF 18=0 THEN 2000
1990 FOR Y=1 TO 10:GOTO 2010:GOTO Y:PRINT "You and I agree to a televised debate."
2000 IF 19=0 THEN 2020
2010 FOR Y=1 TO 10:GOTO 2030:GOTO Y:PRINT "You and I agree to a televised debate."
2020 IF 20=0 THEN 2040
2030 FOR Y=1 TO 10:GOTO 2050:GOTO Y:PRINT "You and I agree to a televised debate."
2040 IF 21=0 THEN 2060
2050 FOR Y=1 TO 10:GOTO 2070:GOTO Y:PRINT "You and I agree to a televised debate."
2060 END=0:GOTO 2100:IF 22=0 THEN 2060
2070 IF 23=0 THEN 2100
2080 IF 24=0 THEN 2100
2090 FOR Y=1 TO 10:GOTO 2110:GOTO Y:PRINT "You and I agree to a televised debate."
2100 GOTO 2150
2110 FOR Y=1 TO 10:GOTO 2120:GOTO Y:PRINT "You and I agree to a televised debate."
2120 FOR Y=1 TO 10:GOTO 2130:GOTO Y:PRINT "You and I agree to a televised debate."
2130 FOR Y=1 TO 10:GOTO 2140:GOTO Y:PRINT "You and I agree to a televised debate."
2140 IF 25=0 THEN PRINT "The debate was a draw."
2150 IF 26=0 THEN PRINT "You won the debate."
2160 GOTO 2170
2170 IF 27=0 THEN 2200
2180 END=0:GOTO 2200
2190 PRINT "The president of a large union promises PRINT the support of the union's members if"
2200 PRINT "you take some action."PRINT "speeches."
2210 PRINT "Will you accept his help?"GOTO 2220
2220 END=0:GOTO 2230:IF 28=0 THEN 2230
2230 FOR Y=1 TO 10:GOTO 2240:GOTO Y:PRINT "The president of a large union promises PRINT the support of the union's members if you take some action."
2240 IF 29=0 THEN 2260
2250 END=0:GOTO 2260:IF 30=0 THEN 2260
2260 GOTO 2270
2270 IF 31=0 THEN 2300
2280 GOTO 2270
```

Presidential Campaign

```
2240 PRINT "Farmers and ranchers want you to PRINT "campaign that they should receive"PRINT "higher
prices for their products."
2250 PRINT "Here is a list that consumers will not"PRINT "like this."
2310 INPUT "Will you support the farmers and"INPUT "ranchers (enter)?"
2320 IF VAL(INPUT) THEN PRINT "No"
2330 IF VAL(INPUT) THEN PRINT "Yes"
2340 GOTO 1000
2350 GOTO 1000
2360 GOTO 1000
2370 GOTO 1000
2380 DATA Alabama,9,8,9
2390 DATA Alaska,3,2,4
2400 DATA Arizona,4,8,4
2410 DATA Arkansas,6,4,10
2420 DATA California,48,8,6
2430 DATA Colorado,7,6,7
2440 DATA Connecticut,8,1,9
2450 DATA Delaware,3,2,3
2460 DATA D.C.,2,2,10
2470 DATA Florida,17,4,7
2480 DATA Georgia,12,4,8
2490 DATA Hawaii,4,2,2
2500 DATA Idaho,4,2,1
2510 DATA Illinois,28,2,9
2520 DATA Indiana,12,2,8
2530 DATA Iowa,8,3,2
2540 DATA Kansas,7,2,8
2550 DATA Kentucky,9,4,2
2560 DATA Louisiana,10,4,11
2570 DATA Maine,4,1,1
2580 DATA Maryland,10,2,5
2590 DATA Massachusetts,14,1,9
2600 DATA Michigan,21,2,7
2610 DATA Minnesota,10,3,11
2620 DATA Mississippi,7,4,10
2630 DATA Missouri,12,4,12
2640 DATA Montana,4,2,4
2650 DATA Nebraska,5,2,4
2660 DATA Nevada,2,2,2
2670 DATA New Hampshire,4,1,2
2680 DATA New Jersey,17,2,4
2690 DATA New Mexico,4,4,2
2700 DATA New York,41,2,1
2710 DATA North Carolina,13,4,5
2720 DATA North Dakota,4,2,1
2730 DATA Ohio,22,2,4
2740 DATA Oklahoma,6,4,2
2750 DATA Oregon,4,2,2
2760 DATA Pennsylvania,27,2,2
2770 DATA Rhode Island,4,1,4
2780 DATA South Carolina,8,4,4
2790 DATA South Dakota,4,2,2
2800 DATA Tennessee,10,4,4
2810 DATA Texas,25,4,1
2820 DATA Utah,4,4,4
2830 DATA Vermont,2,1,2
2840 DATA Virginia,12,4,2
2850 DATA Washington,8,2,2
2860 DATA West Virginia,4,4,1
2870 DATA Wisconsin,11,2,10
2880 DATA Wyoming,3,2,2
2890 DATA and,2,0,0
2900 CLS:PRINT TAB(10);"C E N T R A L D"PRINT
2910 PRINT " You have decided to run for"PRINT "president and have obtained nomination"
2920 PRINT "from your party. The campaign begins"
2930 PRINT "nine months before the election. You"
2940 PRINT "have the options of deciding which"
2950 PRINT "states to visit each month. How many"PRINT "days you wish to spend in the states"
2960 PRINT "you visit, and whether the visit is"PRINT "for campaigning (which wins popular"
2970 PRINT "votes) or fund raising (which wins"PRINT "no popular votes but brings in"
2980 PRINT "contributions to meet expenses and"PRINT "finance campaign activities in other"
2990 PRINT "states). The money that is in the"PRINT "campaign treasury can be spent as you"PRINT "wish
in any state."
3000 PRINT:INPUT "Press (ENTER) to continue"
3010 PRINT " at the beginning of the campaign."
3020 PRINT " you are allowed to make one political"
3030 PRINT "decision. This will affect the"PRINT "initial attitudes of the voters with"
3040 PRINT "respect to you and your opponent."
```



Presidential Campaign

```
3030 PRINT "throughout the campaign, you will have";PRINT "to make additional political decisions"
3040 PRINT "that will influence voter opinion. As"
3070 PRINT "with all political decisions, whatever";PRINT "you decide will not please everyone."
3080 PRINT "In addition, some of your decisions";PRINT "will be compared to those made earlier";
PRINT "to determine your sincerity."
3090 PRINT "Therefore, try to weigh the conditions";PRINT "of each decision carefully. In some"
3100 PRINT "cases, changing position during a";PRINT "campaign can be the best strategy."
3110 PRINT "While at other times, it may be";PRINT "disastrous."
3120 PRINT:INPUT "Press <ENTER> to continue";:GOTO 3130
3130 PRINT " At the end of each month, you";PRINT "will receive a report of the finances"
3140 PRINT "of the treasury. You will be shown";PRINT "the balance at the beginning of the"
3150 PRINT "month, the balance at the end of the";PRINT "month, total contributions during the"
PRINT "month, and total expenditures during"
3160 PRINT "the month.";PRINT " Campaigning is expensive not only"
3170 PRINT "because of advertising in states but";PRINT "also for your actual visits. It is"
3180 PRINT "difficult to spend time fund raising."
3190 PRINT:INPUT "Press <ENTER> to continue";:GOTO 3200
3200 PRINT " There are a few campaign laws to";PRINT "consider:"
3210 PRINT " 1) You can not put the campaign";PRINT "treasury into debt."
3220 PRINT " 2) A $50,000 maximum is placed on";PRINT "each transaction."
3230 PRINT " 3) Unreported campaign contributions";PRINT "are illegal. You may be tempted to"
3240 PRINT "accept some, but you may get caught.";PRINT "It may cost you the election or merely"
3250 PRINT "a few votes.";PRINT " At the end of each month you may campaign as many days per";PRINT "month as you wish and"
PRINT "visit as many"
3260 PRINT "states as you wish. Each month is";PRINT "considered to have thirty days."
3270 PRINT:INPUT "Press <ENTER> to continue";:GOTO 3280
3280 PRINT " At the end of each month, you";PRINT "will be shown your status in one state"
3290 PRINT "as of the end of the month. This is";PRINT "the only indication that you will"
3300 PRINT "receive on your progress."
3310 PRINT " At the end of the campaign, the";PRINT "election is held and you will be shown"
3320 PRINT "the number of electoral college votes";PRINT "awarded by each state, to whom they"
PRINT "were awarded, and the totals of"
3330 PRINT "votes that you and your opponent";PRINT "received."
3340 PRINT:INPUT "Press <ENTER> to continue";:GOTO 3350
3350 PRINT " Be sure to spell each state";PRINT "correctly. Do not use a dollar sign"
3360 PRINT "when entering amounts of money and do";PRINT "not use commas between number digits."
3370 PRINT:INPUT "Press <ENTER> to begin the campaign";:GOTO 3380
3380 RETURN
```



Presidential Campaign

SCENARIO

You have decided to run for president and have obtained nomination from your party. The campaign begins nine months before the election. You have the option of deciding which states to visit each month, how many days you wish to spend in the states you visit, and whether the visit is for campaigning (which wins popular votes) or raising money (which wins no popular votes but brings in contributions to meet expenses and finance campaign activities in other states). The money that is in the campaign treasury can be spent as you wish in any state.

Press **ENTER** to continue? **[]**

At the beginning of the campaign, you are allowed to make some political decisions. These will affect the initial attitudes of the voters with respect to you and your opponent. In the early campaign, you will have to make several major political decisions that will influence voter opinion. As with all political decisions, whatever you decide will not please everyone. In addition, some of your decisions will be compared to those made earlier to determine your success. Therefore, try to weigh the conditions of each decision carefully. In some cases, changing position during a campaign can be the best strategy, while at other times, it may be disastrous.

Press **ENTER** to continue? **[]**

At the end of each month, you will receive a report of the finances of the treasury. You will be shown the balance at the beginning of the month, the balance at the end of the month, total contributions during the month, and total expenditures during the month.

Campaigning is expensive not only because of advertising in states but also for your actual visits. It is helpful to spend time fund raising.

Press **ENTER** to continue? **[]**

There are a few campaign laws to consider:

1. You can not put the campaign treasury in any debt.
2. A \$ 50,000 maximum is placed on any transaction.
3. Unreported campaign contributions are illegal. You may be tempted to pocket some, but you may get caught. It may cost you the election or severely hurt your campaign.
4. You may campaign as many days per month as you wish and visit as many states as you wish. Each month is considered to have thirty days.

Press **ENTER** to continue? **[]**

At the end of each month, you will be shown your status in the state as of the end of the month. This is the only indication that you will receive on your progress.

At the end of the campaign, the election is held and you will be shown the results of a national vote, as well as results by each state, to prove they were accurate, and the totals of votes that you and your opponent received.

Press **ENTER** to continue? **[]**

Be sure to spell each state correctly. In each case a dollar sign when entering amounts of money and do not use commas between number digits.

Press **ENTER** to begin the campaign? **[]**

Conditions

Choose the conditions that you wish to be true.

In what year to you wish the election to take place? **1984**

Enter your name? Andrew Hardidge
Enter your opponent's name? Steve Hillier

- 1)** you wish to be **1)** the incumbent or **2)** the challenger? **2**
- 2)** you wish to be **1)** a Democrat or **2)** a Republican? **2**

ISSUES

- 1)** Inflation **2)** Social Adjustments
3) Pollution **4)** Defense
5) Energy **6)** Foreign Affairs

Which is most important to your campaign? **3**
Which is least important? **4**

Date: February

3 Months before election
Your campaign fund has \$ **500,000.00**

What state do you wish to visit? New Jersey

How many **30** scheduled days left this month?

How many days to you wish to stay there? **3**

How many of the **3** days will be for fund raising? **3**

How many days for campaigning? **0**
Do you wish to visit another state (yes/no)? **no**

Spent campaign money in which state? New Jersey

Your campaign fund has \$ **496,213.00**

How much do you wish to spend? **2000.00**
Do you wish to spend money in another state (yes/no)? **no**

Monthly Report to the Election Committee.

Receipts of Month \$ **500,000.00** Exp **496,213.00**

Contributions = **\$1,013.00**
Expenditures = **\$11,546.00**

Polls show Steve Hillier ahead of you in North Carolina.

He has **72 %** of the vote.

Press **ENTER** to begin next month? **[]**

The U.S. is the target of de-mobilizations in several middle east countries. Several European countries have also been critical of our foreign policy.
Press **ENTER**? **[]**

Spent campaign money in which state? New Jersey

Your campaign fund has \$ **500,046.00**

How much do you wish to spend? **50000.00**

Do you wish to spend money in another state (yes/no)? **no**

Presidential Campaign

Monthly Report to the Election Committee:

Beginning of Month End
\$ 450,313.00 \$ 451,846.00

Contributions = \$43,733.00
Expenditures = \$50,660.00

Polls show Steve Williams ahead of you in Connecticut.
He has 180 % of the vote.

Press CENTER to begin next month? ■

The U.S. is the target of demonstrations in several middle east countries. Several European countries have also been critical of our foreign policy.

Press CENTER? ■

Date: April
3 Months before election
Your campaign fund has \$ 451,846.00

What state do you wish to visit? Florida

You have 30 unscheduled days left this month.

How many days do you wish to stay there? 20

How many of the 20 days will be for fund raising? 5

How many days for campaigning? 10

Do you wish to visit another state (yes/no)? no

Send campaign money in which state? Florida
Your campaign fund has \$ 430,379.00

How much do you wish to send? 30000.00

Do you wish to send money in another state (yes/no)? no

Monthly Report to the Election Committee:

Beginning of Month End
\$ 451,846.00 \$ 483,373.00

Contributions = \$1,500.00
Expenditures = \$52,968.00

Polls show Steve Williams ahead of you in Arizona.
He has 50 % of the vote.

Press CENTER to begin next month? ■

The U.S. is the target of several strikes in several middle east countries. Several European countries have also been critical of our foreign policy.

Press CENTER? ■

Send campaign money in which state? Washington
Your campaign fund has \$ 380,379.00

How much do you wish to send? 3375.00

Do you wish to send money in another state (yes/no)? no

Monthly Report to the Election Committee:

Beginning of Month End
\$ 483,373.00 \$ 380,600.00

Contributions = \$12,000.00
Expenditures = \$50,373.00

Polls show you are ahead of Steve Williams in Kansas. You have 52 % of the vote.

Press CENTER to begin next month? ■

Farmers and ranchers want you to campaign that they should receive higher prices for their products. They think that consumers will not buy their products.
Will you support the farmers and ranchers (yes/no)? yes

Date: June
3 Months before election
Your campaign fund has \$ 300,000.00

What state do you wish to visit? Kansas

You have 30 unscheduled days left this month.

How many days do you wish to stay there? 20

How many of the 20 days will be for fund raising? 15

How many days for campaigning? 5

Do you wish to visit another state (yes/no)? yes

What state do you wish to visit? Ohio

You have 18 unscheduled days left this month.

How many days do you wish to stay there? 18

How many of the 18 days will be for fund raising? 12

How many days for campaigning? 6

Send campaign money in which state? Kansas
Your campaign fund has \$ 365,933.00

How much do you wish to send? 20000.00

Do you wish to send money in another state (yes/no)? yes

Send campaign money in which state? Ohio

Your campaign fund has \$ 345,933.00

How much do you wish to send? 20000.00

Do you wish to send money in another state (yes/no)? no

Monthly Report to the Election Committee:

Beginning of Month End
\$ 380,600.00 \$ 323,933.00

Contributions = \$18,333.00
Expenditures = \$73,990.00

Polls show you are ahead of Steve Williams in Nebraska. You have 50 % of the vote.

Press CENTER to begin next month? ■

There is a shortage of oil, petro products, especially gasoline. The reasons for the shortage are unclear at this time.

Press CENTER? ■

Date: July
3 Months before election
Your campaign fund has \$ 323,933.00

What state do you wish to visit? Texas
You have 30 unscheduled days left this month.

How many days do you wish to stay there? 20

How many of the 20 days will be for fund raising? 15

How many days for campaigning? 10

Do you wish to visit another state (yes/no)? no

Presidential Campaign

Send campaign money in which state? Texas
Your campaign fund has \$ 319,000.00
How much do you wish to spend? 10000.00
Do you wish to spend money in another state (yes/no)? no

Monthly Report to the Election Committee:
Beginning of Month \$ 319,000.00 End 329,000.00
Contributions = 100,000.00
Expenditures = 119,000.00

Polls show Steve Williams ahead of you in Florida.
He has 52 % of the vote.
Press ENTER to begin next month? █

A political boss promises to contribute 1000 dollars to your campaign if you will accept him as your win. This contribution is not legal.
Will you accept (yes/no)? no
Press ENTER? █

Date: August
3 Months before election
Your campaign fund has \$ 300,000.00
What state do you wish to visit? Maine

You have 30 unscheduled days left this month.
How many days do you wish to stay there? 20
How many of the 30 days will be for fund raising? 20
How many days for campaigning? 00

Send campaign money in which state? Maine
Your campaign fund has \$ 273,400.00
How much do you wish to spend? 10000.00
Do you wish to spend money in another state (yes/no)? no

Monthly Report to the Election Committee:
Beginning of Month \$ 283,400.00 End 283,400.00
Contributions = 10,000.00
Expenditures = 10,000.00

Polls show Steve Williams ahead of you in Mississippi.
He has 49 % of the vote.
Press ENTER to begin next month? █

You and Steve Williams agree to a television debate.
You win the debate.
Press ENTER? █

Date: September
2 Months before election
Your campaign fund has \$ 203,400.00
What state do you wish to visit? California
You have 30 unscheduled days left this month.
How many days do you wish to stay there? 20
How many of the 30 days will be for fund raising? 10
How many days for campaigning? 30

Date: September
2 Months before election
Your campaign fund has \$ 203,400.00
What state do you wish to visit? California
You have 30 unscheduled days left this month.
How many days do you wish to stay there? 20
How many of the 30 days will be for fund raising? 10
How many days for campaigning? 5
Do you wish to visit another state (yes/no)? no

Your campaign fund has \$ 277,400.00
How much do you wish to spend? You did not spell the state correctly.
Send campaign money in which state?
Your campaign fund has \$ 277,400.00
How much do you wish to spend? You did not spell the state correctly.
Send campaign money in which state?

Your campaign fund has \$ 277,400.00
How much do you wish to spend? You did not spell the state correctly.
Send campaign money in which state? California
Your campaign fund has \$ 277,400.00
How much do you wish to spend? 7000.00
Do you wish to spend money in another state (yes/no)? no

Monthly Report to the Election Committee:
Beginning of Month \$ 283,400.00 End 278,400.00
Contributions = 100,000.00
Expenditures = 110,000.00

Polls show Steve Williams ahead of you in N.C.
He has 51 % of the vote.
Press ENTER to begin next month? █

Farmers and ranchers urge you to assure that they should receive higher prices for their products.
Keep in mind that consumers will not like this.
Will you support the farmers and ranchers? yes
Press ENTER? █

Send campaign money in which state? N.C.
Your campaign fund has \$ 277,400.00
How much do you wish to spend? 10000.00
Do you wish to spend money in another state (yes/no)? no

Monthly Report to the Election Committee:
Beginning of Month \$ 278,400.00 End 283,400.00
Contributions = 10,000.00
Expenditures = 10,000.00

Polls show Steve Williams ahead of you in North Carolina.
He has 50 % of the vote.
Press ENTER to begin next month? █

Presidential Campaign

The president of a large union promises the support of the union's members if you make some pro-union campaign speeches.
 Will you accept his help (yes/no)? yes
 Press **4** to answer.

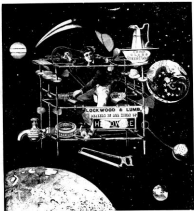
Election Night Results Electoral Votes

| State | Yes | No | Your Response | |
|----------------------|-----|----|---------------|-------|
| | | | Total | Total |
| Alabama |  |  | ..... | ..... |
| Alaska |  |  | ..... | ..... |
| Arizona |  |  | ..... | ..... |
| Arkansas |  |  | ..... | ..... |
| California |  |  | ..... | ..... |
| Colorado |  |  | ..... | ..... |
| Connecticut |  |  | ..... | ..... |
| Delaware |  |  | ..... | ..... |
| District of Columbia |  |  | ..... | ..... |
| Florida |  |  | ..... | ..... |
| Georgia | 3 |  | ..... | ..... |
| Idaho |  |  | ..... | ..... |
| Illinois |  |  | ..... | ..... |
| Indiana |  |  | ..... | ..... |
| Iowa |  |  | ..... | ..... |
| Kansas |  |  | ..... | ..... |
| Kentucky | 7 |  | ..... | ..... |
| Louisiana |  |  | ..... | ..... |
| Maine |  |  | ..... | ..... |
| Maryland |  |  | ..... | ..... |
| Massachusetts |  |  | ..... | ..... |
| Michigan |  |  | ..... | ..... |
| Minnesota |  |  | ..... | ..... |
| Mississippi |  |  | ..... | ..... |
| Missouri |  |  | ..... | ..... |
| Montana |  |  | ..... | ..... |
| Nebraska |  |  | ..... | ..... |
| Nevada |  |  | ..... | ..... |
| New Hampshire |  |  | ..... | ..... |
| New Jersey |  |  | ..... | ..... |
| New Mexico |  |  | ..... | ..... |
| New York |  |  | ..... | ..... |
| North Carolina |  |  | ..... | ..... |
| North Dakota |  |  | ..... | ..... |
| Ohio |  |  | ..... | ..... |
| Oklahoma |  |  | ..... | ..... |
| Oregon |  |  | ..... | ..... |
| Pennsylvania |  |  | ..... | ..... |
| Rhode Island |  |  | ..... | ..... |
| South Carolina |  |  | ..... | ..... |
| South Dakota |  |  | ..... | ..... |
| Tennessee |  |  | ..... | ..... |
| Texas |  |  | ..... | ..... |
| Utah | 26 |  | ..... | ..... |
| Vermont |  |  | ..... | ..... |
| Virginia |  |  | ..... | ..... |
| Washington |  |  | ..... | ..... |
| West Virginia |  |  | ..... | ..... |
| Wisconsin |  |  | ..... | ..... |
| Wyoming |  |  | ..... | ..... |

Steve Williams is the winner of the 1976 presidential election. Steve Williams has 502 electoral votes, more than his opponent, Andrew Hardidge.



Star Merchant



Star Merchant was written by Lloyd Johnson and originally appeared in Creative Computing, August 1981.

Introduction

Star Merchant is a futuristic trade simulation game. When this article first appeared in the August 1981 issue of *Creative Computing*, I was negligent in not giving the game "Traveller" proper credit as a source for cargo names and base prices. "Traveller" is a role playing system set in the far future. Its rules cover many facets of life in the 57th century and are constantly being expanded. "Traveller" is available from hobby stores or from Game Designers' Workshop, Box 1646, Bloomington, IL 61701.

Historical Background

Early in the 26th century the SOXIFTL drive was developed. This drive, when properly installed on a spaceship, would cause a controlled warping of space enabling the spaceship to travel at fifty times faster than light (SOXIFTL). Massive colonization of the nearby stars took place in the following two centuries due to the crowded conditions on inhabitable planets of the solar system and the development of this drive.

By the mid-29th century, large orbiting space stations (starports) were constructed at the ten most

populated star systems. These starports had facilities for docking and refueling starships as well as massive cargo storage capability. The construction of these starports was closely paralleled by a simplification of starship design. With the advent of the starports, it was no longer necessary for a starship to land on a planet. This eliminated the need for atmospheric streamlining, as well as the large reaction engines required to lift the starship from the planetary surface, while it substantially increased the cargo hold of starships.

The type of cargo which will be available for purchase at any particular starport is difficult to predict, since most of the cargos did not originate at that star system, but were brought there by other merchant starships. Coordination of trade routes to guarantee cargo availability at a starport had never occurred due to the independent nature of the star merchants and the slow communication between the star systems.

As trade developed between the starports, each starport was assigned a trade classification. Although the trade classification is useless in determining which cargos might be available for purchase, it is extremely useful in predicting the price of the cargo. As political and economic conditions change at a star system, the assigned trade classification may change slightly.

Game Description

The game has recently been modified from the original publication to include a two player option. When playing *Star Merchant*, the player or players will find themselves in command of a merchant starship. Their goal is to not only make enough money by trading cargos to stay in business and to regain the initial investment for the lease of the starship, but to make more money than the other player.

There are ten different starports where trade is conducted and thirty-six different types of cargos which may be traded. The different types of cargos range from agricultural produce and raw materials to industrially produced items, such as weapons and machinery. The price at which these cargos will be traded is dependent upon the trade classification of the starport where the item is being traded. For example, farm machinery might bring top dollar at a starport with an agricultural trade class, whereas the price of grain at this starport will probably be very low.

The starport distances and directions are all represented in two dimensions. This was done to simplify game play. Command `?`, `DISPLAY STARPORT MAP`, will display the relative positions of these starports. This command is useful to the players when planning their trade routes.

Ship expenses must be paid every time a new starport is reached. If the player's account becomes negative after paying these expenses, he must sell enough cargo to make it positive before he can leave the starport. If he does not have enough cargo to do this, the game will end for the player. If two players are playing, the other player may continue the game as a one player game if desired.

The expenses which must be paid consist of a docking fee, fuel expenses, and crew salary. The docking fee will always be 50,000 credits. The fuel expenses are directly proportional to the distance traveled from the last starport. The cost of fuel per lightyear is 100,000 credits. The crew's salary is based on an annual salary of 500,000 credits and the amount of ship time that has passed since the crew was last paid. Ship time increases approximately .02 years (a week) for each lightyear traveled and approximately .003 years (a day) for each cargo transaction.



Before leaving a starport the player will be asked if he wants to purchase piracy insurance. This question is skipped if the player's account does not hold enough revenue to make this payment. The price of piracy insurance is ten percent of the total value of the cargo presently stored in the hold. If the cargo should be stolen by pirates, the player will be reimbursed for the last assessed value of his cargo. No reimbursement will take place if the player had not purchased piracy insurance.

The pirates are a highly technical organization which have found a loophole in the law of relativity. They utilize this loophole to empty a starship of cargo while it is in the warped space generated by the SOXFTL drive. With their ability to alter the rate of time, the pirates are able to rendezvous with a starship, board it and take its cargo, leave an insulting message, and disappear all within a time interval too short to be measured by the starship's chronometers.

The true origin of the pirates is still unknown, however investigations are being undertaken. Although a major breakthrough in this investigation had occurred when several lots of stolen cargo were identified at one of the starports, the player can still expect to have his cargo stolen from him approximately ten percent of the time.

As the player's fortune grows, the probability will increase that the crew will go on strike for a higher salary. When a strike occurs the crew presents their salary demands and the player is asked for a counter-offer. The probability that the counter offer will be accepted depends upon the amount that was offered and the number of counter-offers that have been rejected previously. Once the crew has rejected ten counter-offers, they will accept only their original salary demands or higher. For this reason an early strike settlement is desirable.

The lease on a player's ship will expire after two years of ship time. At this time, the player will be asked to renew his lease if he has enough money to do so. It will cost 2,000,000 credits for another two year lease. If the player does not renew his lease, the game will end for him and his final game results will be displayed. The other player will be allowed to continue playing until his lease expires.



Star Merchant

```
10 REM *****
20 REM # STAR MERCHANT #
30 REM # In Microsoft BASIC #
40 REM *****
50 REM Initialization
60 DIM #4(20),#4(10),#4(5),#4(10)
70 DIM #20,40,100#1,50#1,100#
80 CLS:PRINT TAB(12)"STAR MERCHANT"
90 PRINT:PRINT "You have just spent 2 million credits"
100 PRINT "on a 2 year lease for a merchant"
110 PRINT "partnership. This leaves you with 2"
120 PRINT "million credits operating capital."
130 PRINT
140 PRINT "Your ship can hold a total of 20 cargoes"
150 PRINT "with a total cargo weight of 200 tons."
160 PRINT "The fuel capacity of your ship is great"
170 PRINT "enough such that travel between any 2"
180 PRINT "starports is possible without"
190 PRINT "refueling."
200 PRINT
210 PRINT "You are presently traveling from Alpha"
220 PRINT "Centauri to Beta. You are carrying no"
230 PRINT "cargo."
240 PRINT:PRINT "Press any key to continue."
250 READ#0:IF #0="" THEN 250
260 CLS:PRINT "The starport trade classification"
270 PRINT "determines the cargo price but does not"
280 PRINT "determine which cargoes are available."
290 PRINT
300 PRINT "Abbreviations used for trade class are"
310 PRINT "as follows"
320 PRINT " R-Rich; P-Poor; I-Industrial"
330 PRINT " NI-NonIndustrial; A-Agricultural"
340 PRINT " NA-NonAgricultural"
350 PRINT
360 PRINT "Press any key to continue."
370 READ#0:IF #0="" THEN 370
380 CLS:PRINT "Commands available are as follows":PRINT
390 GOSUB 2420
400 GOTO 410
410 PRINT
420 PRINT "Enter a random number between 1"
430 INPUT "and 500 ";I
440 PRINT
450 FOR J=1 TO I
460 GOSUB 4110
470 NEXT J
480 DEF FN A(R)=INT(64999.99*I)/100
490 DEF FN B(R)=INT(62499.99*I)/100
500 DEF FN C(R)=(FN A(R)+FN B(R))
510 B2=20000000
520 B3=14.5
530 B4=0
540 B1=50000
550 B2=500000
560 B3=500000
570 B4=30
580 B5=10
590 B1=200
600 M=40
610 FOR I=1 TO 20
620 H(I,1)=0
630 NEXT I
640 GOSUB 3050
650 FOR I=1 TO 14
660 READ P(I)
670 NEXT I
680 T=0
690 T=0
700 T=0
710 GOSUB 2310
720 REM Main Logic
730 IF #0(1)+.01*#0(50)+.03#0(10) THEN 750
740 GOSUB 1120
750 PRINT
760 PRINT " Account balances":PRINT USING"###,###,###";#0:PRINT " Empty cargo"
770 PRINT " ";PRINT USING"###";#0
780 PRINT TAB(15)"Ship. tons":INT(T#10000/1000);"years"
```

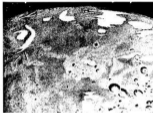


Star Merchant

```

780 PRINT:INPUT "Enter command";C1:PRINT
790 IF C1=0 AND C1<7 AND C1=INT(ABS(C1)) THEN G20
800 GOSUB 3420
810 GOTO 720
820 ON C1 GOSUB 1310,1480,1490,1700,2090,2180
830 G2=G2+1
840 IF G2=0 THEN 760
850 IF T2=2475:G THEN 720
860 PRINT
870 PRINT "The Lease has expired on your ship."
880 IF G2=200000000 THEN 760
890 PRINT "Another lease will cost 2 million"
900 PRINT "credits."
910 INPUT "Do you wish to renew your lease (Y/N)";A1
920 IF A1="N" OR A1="n" THEN 760
930 G2=G2-200000000
940 T2=T2+1
950 GOTO 720
960 REM End Program
970 G2=(G2-40000000)/10
980 A1="Lease"
990 IF G1=0 THEN 1010
1000 A1="gain"
1010 IF G3=0 THEN 1040
1020 PRINT
1030 PRINT "You no longer have sufficient funds to";PRINT"operate your ship."
1040 PRINT
1050 PRINT "You began with 4 million credits and"
1060 IF G2=0 THEN G2=4
1070 PRINT "now have";G2;"credits."
1080 PRINT "Cargo in the hold is worth";T1
1090 PRINT
1100 PRINT "This represents a ";A1;" of";ABS(INT(G2/1000)/1000);PRINT "credits per year."
1110 GOTO 6490
1120 REM Strike sub
1130 PRINT
1140 PRINT "The crew has gone on strike! You are"
1150 PRINT "currently paying them";G3;"credits";PRINT "annually.  ";
1160 G2=G2+.5*ABS(G3);G3
1170 PRINT "They are asking for";G3;"credits."
1180 G4=0
1190 G4=G2+ABS(G3)-G3/10
1200 PRINT
1210 INPUT "Enter counter offer";E7
1220 IF E7>=0 THEN 1280
1230 IF E7<0 THEN 1290
1240 IF (G2-E7)/G3<=E6/(ABS(G4)) THEN 1260
1250 PRINT "Offer rejected - try again"
1260 A1="yes"
1270 GOTO 1190
1280 PRINT "Offer accepted."
1290 E7=E7
1300 RETURN
1310 REM List Hold
1320 PRINT "Cargo stored in hold:"
1330 IF W2=0 THEN 1360
1340 PRINT "All partitions are empty."
1350 RETURN
1360 PRINT "PL Description          AMT      Price    1"
1370 FOR J=1 TO 20
1380 RESTORE
1390 IF H1(J),G1=0 THEN 1460
1400 FOR J=1 TO (PH1(J),1)
1410 READ A#
1420 NEXT J
1430 READ A#
1440 PRINT USING"###";J;PRINT TAB(3);A#;TAB(20);PRINT USING"###";H1(J)
1450 PRINT TAB(20);PRINT USING"#####";H1(J),2;PRINT TAB(20);PRINT USING"###";H1(J),3
1460 NEXT J
1470 RETURN
1480 REM List Cargo for Sale
1490 PRINT "Cargos available for purchase:"
1500 IF N1=0 THEN 1530
1510 PRINT "All available cargoes have been bought."
1520 RETURN
1530 PRINT "No Description          AMT      Price    3"
1540 FOR I=1 TO 5
1550 RESTORE

```



Star Merchant

```
2540 IF A(1,1)=0 THEN 1630
2570 FOR J=1 TO 1944:GOTO 2580
2580 READ A#
2590 NEXT J
2600 READ A#
2610 PRINT USING"##";J;PRINT TAB(3);A#;TAB(20);PRINT USING"###";A(1,1)
2620 PRINT TAB(20);PRINT USING"#####";A(1,2);PRINT TAB(20);PRINT USING"###"
  "A(1,3)
2630 NEXT J
2640 RETURN
2650 REM Buy Cargo Sub
2660 PRINT "Enter the lot number of cargo that you'd input 'want to purchase':";
2670 IF <=>=0:GOTO I1 AND K=0 AND N=0 THEN 1700
2680 PRINT "Invalid lot number."
2690 RETURN
2700 IF A(K,1)=0 THEN 2730
2710 PRINT "Lot";K;"has already been purchased."
2720 RETURN
2730 IF A(K,2)=0 THEN 1740
2740 PRINT "You can not buy cargo on credit."
2750 RETURN
2760 IF A(K,3)=0 THEN 1790
2770 PRINT "You do not have sufficient cargo space."
2780 RETURN
2790 FOR I=0 TO 20
2800 IF H(I,1)=0 THEN 1830
2810 NEXT I
2820 PRINT "All 20 cargo partitions are occupied."
2830 RETURN
2840 FOR J=0 TO 4
2850 H(I,2)=A(K,2)
2860 NEXT J
2870 A(K,1)=0
2880 M=M+H(I,2)
2890 B=B+H(I,2)
2900 T=T+30-M
2910 M=M-I
2920 PRINT:PRINT "Transaction completed"
2930 PRINT "Cargo stored in partition";I
2940 RETURN
2950 REM Sell Cargo Sub
2960 INPUT "Enter partition of cargo to be sold";I
2970 IF <=>=0:GOTO I1 AND K=0 AND N=0 THEN 2000
2980 PRINT "Invalid partition number"
2990 RETURN
3000 IF H(I,1)=0 THEN 2030
3010 PRINT "Cargo partition is empty."
3020 RETURN
3030 B=B-H(I,1)
3040 M=M-H(I,1)
3050 T=T+30-M
3060 H(I,1)=0
3070 PRINT "Transaction completed"
3080 RETURN
3090 REM List Starports Sub
3100 PRINT "No. Name Trade Co Dist Dir"
3110 RESTORE
3120 FOR I=1 TO 10
3130 READ A#,B#
3140 PRINT USING"##";I;PRINT TAB(5);A#;TAB(21);B#
3150 PRINT TAB(12);PRINT USING"##.##";A(1);PRINT TAB(20);PRINT USING"###";T(1)
3160 NEXT I
3170 RETURN
3180 REM Travel Sub
3190 IF B>0 THEN 2200
3200 PRINT "You can not leave starport until all";PRINT "tabts are cleared."
3210 RETURN
3220 PRINT "Enter destination star number";
3230 INPUT I
3240 IF I<=0 THEN 2270
3250 PRINT "You are already at";I
3260 RETURN
3270 IF I=>=0:GOTO I1 AND I=0 AND I=0 THEN 2300
3280 PRINT "Invalid star number"
3290 RETURN
3300 B1=0
3310 REM Get Star Trade & Location Data
3320 GOSUB 2310
```



Star Merchant

```

2330 IF S1=1 THEN 2370
2340 FOR I=1 TO 100-1100
2350 READ D9
2360 NEXT I
2370 READ S3, V3, P3
2380 FOR I=1 TO 4
2390 Q3=2*V3-1
2400 S(1)=INT(Q3/100)
2410 P(1)=S(1)*100
2420 NEXT I
2430 REM Approve Cargo in Hold
2440 T=0
2450 FOR J=1 TO 20
2460 IF S(1,1)=0 THEN 2500
2470 GOSUB 2580
2480 IF S(1,1)=1 THEN 2520
2490 FOR J=1 TO S(1,1)-1:100
2500 READ D9
2510 NEXT J
2520 Q3=0
2530 FOR J=1 TO 4
2540 READ D3
2550 Q3=Q3+Q3*(D3)
2560 NEXT J
2570 READ S1
2580 P2=PN C(0)+Q3-1
2590 IF P2>1 THEN 2610
2600 Q3=0
2610 IF P2<14 THEN 2630
2620 P2=14
2630 H1,4)=P2*1000
2640 H1,3)=P2*1000*(S1,1)
2650 T=T+H1,1)
2660 NEXT J
2670 REM Get Cargos for Sale
2680 H1=0
2690 FOR I=1 TO 5
2700 Q2=0
2710 T2=PN S(1)+1
2720 A(1,1)=T2
2730 GOSUB 2580
2740 IF S2=1 THEN 2800
2750 FOR J=1 TO T2-1:100
2760 READ D9
2770 NEXT J
2780 FOR J=1 TO 4
2790 READ S3
2800 Q2=Q2+Q2*(S3)
2810 NEXT J
2820 P2=PN C(0)+Q2-1
2830 IF P2>1 THEN 2850
2840 P2=1
2850 IF P2<14 THEN 2870
2860 P2=14
2870 A(1,4)=P2*1000
2880 READ S1,S1
2890 Q2=1
2900 IF T2<17 THEN 2940
2910 Q2=0
2920 IF T2<12 THEN 2940
2930 Q2=10
2940 Q2=0
2950 FOR J=1 TO 10
2960 Q2=PN A(1)+Q2+Q2
2970 NEXT J
2980 IF Q2<200 THEN Q2=200
2990 A(1,3)=Q2
3000 A(1,2)=Q2*(S1)
3010 NEXT I
3020 REM Dist. and Direction of Stars
3030 D4=0(81)
3040 GOSUB 3050
3050 FOR I=1 TO 10
3060 READ S1, V1, P1
3070 Q2=S1-53
3080 V2=V1-V2
3090 IF V2>0 THEN 3130
3100 IF V2<0 THEN 3130
3110 V2=990
3120 GOTO 3220
3130 V2=070
3140 GOTO 3220
3150 V2=670*(V2/100)+100*V3, 14150
3160 IF S2=0 THEN 3180
3170 V2=7*V1+900
3180 IF V1<500 THEN 3200
3190 V2=7*V1-300
3200 IF V2>0 THEN 3220
3210 V2=7*V1-300
3220 S(1)=S(1)+Q2*2+V2*2)
3230 NEXT I
3240 REM Arrival Expenses and Star Name
3250 S=Ten, 02004, 02
3260 S4=15-771003
3270 T3=5
3280 RESTORE
3290 IF S=1 THEN 3320
3300 FOR I=1 TO S-1
3310 READ A4,S4
3320 NEXT I
3330 READ A4,S4
3340 PRINT
3350 CLS:PRINT "You have arrived at "A4";PRINT
3360 PRINT "Expenses have been deducted as follows:"
3370 PRINT TAB(7)"Docking fees":PRINT US100"###,###,###";S1
3380 PRINT TAB(14)"Fuel":PRINT US100"###,###,###";S2+S4
3390 PRINT TAB(17)"Crew salaries":PRINT US100"###,###,###";S4
3400 S2=S2-(S1+S2+S4+S4)
3410 RETURN
3420 PRINT "Command";TAB(12);"Description"
3430 PRINT TAB(4);"1";TAB(12)"List cargo in hold"
3440 PRINT TAB(4);"2";TAB(12)"List cargo which"PRINT TAB(12)
"may be purchased"
3450 PRINT TAB(4);"3";TAB(12)"Buy cargo"
3460 PRINT TAB(4);"4";TAB(12)"Sell cargo"
3470 PRINT TAB(4);"5";TAB(12)"List starports"
3480 PRINT TAB(4);"6";TAB(12)"Travel to new star"
3490 PRINT "Other";TAB(12)"List available commands"
3500 RETURN
3510 REM Restore to Star Data Sub
3520 RESTORE
3530 FOR L=1 TO 1200+200
3540 READ A4
3550 NEXT L
3560 IF S=1 THEN S2=0:GOTO 3600
3570 RETURN
3580 REM Restore to Cargo Data Sub
3590 S2=1:GOTO 3510
3600 FOR L=1 TO 1000
3610 READ S9
3620 NEXT L
3630 IF L=1 THEN L2=0:GOTO 3670
3640 RETURN
3650 REM Restore to Price Data Sub
3660 L2=1:GOTO 3590
3670 FOR L=1 TO 6000
3680 READ S9
3690 NEXT L
3700 RETURN
3710 REM Star Names
3720 DATA "Lalande 21180", "W, P"
3730 DATA "Alpha Centauri", "W, I"
3740 DATA "Sirius", "W"
3750 DATA "Barnard Star", "I, P"
3760 DATA "Zos", "W"
3770 DATA "Ross 248", "W, W"
3780 DATA "Rigel 7140", "W, P"
3790 DATA "Luyten 724-B", "W"
3800 DATA "Luyten 789-A", "W, S, P"
3810 DATA "Ross 240", "W, I"
3820 REM Cargo Names
3830 DATA "Crystals"
3840 DATA "Medicines"
3850 DATA "Alloys"
3860 DATA "Medicine"
3870 DATA "Gems"

```

Star Merchant

3890 DATA "Aircraft"
 3895 DATA "Guns/missiles"
 3900 DATA "Computers"
 3905 DATA "NAV"
 3910 DATA "NAV"
 3915 DATA "Firearms"
 3920 DATA "Ammunition"
 3925 DATA "Pleasure goods"
 3930 DATA "Tools"
 3935 DATA "Body armor"
 3940 DATA "Plane machinery"
 3945 DATA "Liquor"
 3950 DATA "Silver"
 3955 DATA "Spices"
 3960 DATA "Electronics"
 3965 DATA "Mechanical parts"
 3970 DATA "Cybernetic parts"
 3975 DATA "Computer parts"
 3980 DATA "Machine tools"
 3985 DATA "Space suits"
 3990 DATA "Fruit"
 3995 DATA "Textiles"
 4000 DATA "Polymers"
 4005 DATA "Meat"
 4010 DATA "Petroleum/chemicals"
 4015 DATA "Grain"
 4020 DATA "Wood"
 4025 DATA "Copper"
 4030 DATA "Tin"
 4035 DATA "Steel"
 4040 DATA "Aluminum"
 4045 REP Star Data
 4050 DATA 2.83,-7.34,20
 4055 DATA -2.4,-2.56,7
 4060 DATA 8.38,9.93,2
 4065 DATA -4.1,0.24
 4070 DATA 0.0,32
 4075 DATA -8.87,2.88,5
 4080 DATA 8.48,4.85,18
 4085 DATA 3.49,7.42,3
 4090 DATA -4.43,-4.3,22

4095 DATA -1.89,10.28,10
 4100 REP Cargo Data
 4105 DATA 3,-2,2,-2,0,-4,20000,1
 4110 DATA 0,1,4,-3,0,-2,1000000,1
 4115 DATA -2,0,-4,0,1,-2,2000000,1
 4120 DATA -1,4,-4,2,-2,0,1000000,1
 4125 DATA 4,-2,4,-4,-1,0,1000000,1
 4130 DATA -2,4,-2,2,1,-1,1000000,1
 4135 DATA 2,0,-1,1,0,0,6000000,1
 4140 DATA 1,0,-2,0,0,0,10000000,1
 4145 DATA -2,2,-2,1,1,0,300000,1
 4150 DATA 0,2,-2,0,0,1,200000,1
 4155 DATA -2,0,-4,1,0,0,30000,2
 4160 DATA -1,0,-2,0,0,0,30000,2
 4165 DATA -1,2,-2,0,0,0,200000,2
 4170 DATA -4,7,-4,4,0,0,10000,2
 4175 DATA -2,0,-4,1,0,0,20000,2
 4180 DATA -2,2,-4,0,0,-4,100000,1
 4185 DATA 2,2,-1,0,-2,0,10000,1
 4190 DATA 2,-1,2,-1,0,-2,70000,1
 4195 DATA 4,-2,2,-1,-8,2,6000,1
 4200 DATA 0,0,-4,4,1,1,100000,1
 4205 DATA 0,1,-2,2,1,1,75000,1
 4210 DATA 1,0,-4,2,1,0,200000,1
 4215 DATA 1,0,-2,2,0,0,100000,1
 4220 DATA 1,0,-2,1,0,0,750000,1
 4225 DATA -1,2,-2,2,0,0,400000,1
 4230 DATA 1,2,2,1,-4,-6,1000,2
 4235 DATA 1,0,-2,1,-5,-3,3000,2
 4240 DATA -2,0,2,2,0,0,7000,4
 4245 DATA 0,0,2,2,-2,0,5,100,8
 4250 DATA 2,0,4,-2,2,0,10000,6
 4255 DATA 0,0,1,2,-2,4,300,8
 4260 DATA 0,0,1,2,-7,2,1000,2
 4265 DATA 2,2,2,-2,-1,-4,2000,2
 4270 DATA 2,2,2,-4,-1,-2,9000,2
 4275 DATA -1,2,0,0,0,0,500,4
 4280 DATA -1,1,2,-2,0,-2,1000,5
 4285 REP Price Data
 4290 DATA 4,-8,-7,-8,-7,1,1,1,1,2,1,2,1,2,1,2,2,2,4
 4295 END

STAR MERCHANT

You have just spent 2 million credits on a 2 year lease for a merchant starship. This leaves you with 2 million credits operating capital.

Your ship can hold a total of 20 cargoes with a total cargo weight of 200 tons. The total capacity of your ship is great enough such that cargo between any 2 planets is possible without re-loading.

You are presently traveling from Alpha Centauri to Sol. You are carrying no cargo.

Press any key to continue.■

The starport trade classification determines the cargo price but does not determine which cargoes are available.

Observations used for trade class are as follows:

0-Agriculture
 1-Mining
 2-Industry
 3-Nonmetallic
 4-Metallurgical
 5-Agricultural
 6-Nonagricultural

Press any key to continue.■

Commands available are as follows:

| | |
|---------|-----------------------------------|
| Command | Description |
| 1 | List cargo on hold |
| 2 | List cargo which may be purchased |
| 3 | List cargo |
| 4 | List planets |
| 5 | Travel to new star |
| Other | List available commands |

Enter a cargo number between 1 and 20 & 1-20

You have arrived at Sol.

Expenses have been deducted as follows:
 Loading fee: 20,000
 Fuel: 400,000
 Crew salary: 20,000

Account balance: 1,467,000
 Empty cargo slots: 20
 Ship time: .186 years

Enter command? 1

Cargo stored in hold:
 All partitions are empty.

Account balance: 1,467,000
 Empty cargo slots: 20
 Ship time: .186 years

Enter command? 2

Star Merchant

Cargos available for purchase:

| No. | Description | Qty | Price | Weight |
|-----|------------------|-----|-------|--------|
| 1 | Mechanical parts | 14 | 12000 | 16800 |
| 2 | Steel | 20 | 10000 | 20000 |
| 3 | Machine tools | 20 | 10000 | 20000 |
| 4 | Mechanical parts | 20 | 10000 | 20000 |

Account balance: 1,467,000
 Empty cargo space: 200
 Ship time: .186 years

Enter command? 2

Enter the lot number of cargo that you want to purchase? 1

Transaction completed
 Cargo stored in partition 1

Account balance: 984,000
 Empty cargo space: 180
 Ship time: .189 years

Enter command? 3

Enter the lot number of cargo that you want to purchase? 2

Transaction completed
 Cargo stored in partition 2

Account balance: 833,000
 Empty cargo space: 75
 Ship time: .112 years

Enter command? 3

| No. | Name | Trade | Cl | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 |
|-----|----------------|-------|----|---|---|---|---|---|---|---|---|---|---|
| 1 | Lalande 21185 | M.P. | 1 | | | | | | | | | | |
| 2 | Alpha Centauri | M.P. | 1 | | | | | | | | | | |
| 3 | Gamma | M.P. | 1 | | | | | | | | | | |
| 4 | Barnard's Star | M.P. | 1 | | | | | | | | | | |
| 5 | 51 | M.P. | 1 | | | | | | | | | | |
| 6 | Keck 154 | M.P. | 1 | | | | | | | | | | |
| 7 | Keck 154 | M.P. | 1 | | | | | | | | | | |
| 8 | Keck 154 | M.P. | 1 | | | | | | | | | | |
| 9 | Keck 154 | M.P. | 1 | | | | | | | | | | |
| 0 | Keck 154 | M.P. | 1 | | | | | | | | | | |

Account balance: 805,000
 Empty cargo space: 75
 Ship time: .112 years

Enter command? 6

Enter destination star number? 21

You have arrived at Alpha Centauri.

Expenses have been deducted as follows:

Bookings Fee: 40,000
 Fuel: 40,000
 Crew salary: 50,000

Account balance: 615,000
 Empty cargo space: 75
 Ship time: .217 years

Enter command? 1

Cargo stored in hold:

| No. | Description | Qty | Price | Weight |
|-----|------------------|-----|-------|--------|
| 1 | Mechanical parts | 14 | 12000 | 16800 |
| 2 | Steel | 20 | 10000 | 20000 |

Account balance: 615,000
 Empty cargo space: 75
 Ship time: .217 years

Enter command? 2

Cargos available for purchase:

| No. | Description | Qty | Price | Weight |
|-----|-------------|-----|-------|--------|
| 1 | Gas | 10 | 10000 | 10000 |
| 2 | Gas | 10 | 10000 | 10000 |
| 3 | Gas | 10 | 10000 | 10000 |
| 4 | Gas | 10 | 10000 | 10000 |
| 5 | Gas | 10 | 10000 | 10000 |
| 6 | Gas | 10 | 10000 | 10000 |
| 7 | Gas | 10 | 10000 | 10000 |
| 8 | Gas | 10 | 10000 | 10000 |
| 9 | Gas | 10 | 10000 | 10000 |
| 0 | Gas | 10 | 10000 | 10000 |

Account balance: 615,000
 Empty cargo space: 75
 Ship time: .217 years

Enter command? 4

Enter partition of cargo to be sold? 2
 Transaction completed

Account balance: 599,700
 Empty cargo space: 180
 Ship time: .22 years

Enter command? 4

Enter partition of cargo to be sold? 1
 Transaction completed

Account balance: 1,327,000
 Empty cargo space: 180
 Ship time: .223 years

Enter command? 3

Enter the lot number of cargo that you want to purchase? 1

Transaction completed
 Cargo stored in partition 1

Account balance: 517,000
 Empty cargo space: 180
 Ship time: .226 years

Enter command? 3

| No. | Name | Trade | Cl | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 |
|-----|----------------|-------|----|---|---|---|---|---|---|---|---|---|---|
| 1 | Lalande 21185 | M.P. | 1 | | | | | | | | | | |
| 2 | Alpha Centauri | M.P. | 1 | | | | | | | | | | |
| 3 | Gamma | M.P. | 1 | | | | | | | | | | |
| 4 | Barnard's Star | M.P. | 1 | | | | | | | | | | |
| 5 | 51 | M.P. | 1 | | | | | | | | | | |
| 6 | Keck 154 | M.P. | 1 | | | | | | | | | | |
| 7 | Keck 154 | M.P. | 1 | | | | | | | | | | |
| 8 | Keck 154 | M.P. | 1 | | | | | | | | | | |
| 9 | Keck 154 | M.P. | 1 | | | | | | | | | | |
| 0 | Keck 154 | M.P. | 1 | | | | | | | | | | |

Account balance: 517,000
 Empty cargo space: 180
 Ship time: .226 years

Enter command? 6

Enter destination star number? 11

You have arrived at Lalande 21185.

Expenses have been deducted as follows:

Bookings Fee: 40,000
 Fuel: 40,000
 Crew salary: 50,000

Account balance: -250,000
 Empty cargo space: 180
 Ship time: .376 years

Enter command? 1

Cargo stored in hold:

| No. | Description | Qty | Price | Weight |
|-----|-------------|-----|-------|--------|
| 1 | Gas | 10 | 10000 | 10000 |

Account balance: -250,000
 Empty cargo space: 180
 Ship time: .376 years

Enter command? 4

Enter partition of cargo to be sold? 1
 Transaction completed

Account balance: 371,000
 Empty cargo space: 180
 Ship time: .379 years

Enter command? 2

Cargos available for purchase:

| No. | Description | Qty | Price | Weight |
|-----|-------------|-----|-------|--------|
| 1 | Gas | 10 | 10000 | 10000 |
| 2 | Gas | 10 | 10000 | 10000 |
| 3 | Gas | 10 | 10000 | 10000 |
| 4 | Gas | 10 | 10000 | 10000 |
| 5 | Gas | 10 | 10000 | 10000 |
| 6 | Gas | 10 | 10000 | 10000 |
| 7 | Gas | 10 | 10000 | 10000 |
| 8 | Gas | 10 | 10000 | 10000 |
| 9 | Gas | 10 | 10000 | 10000 |
| 0 | Gas | 10 | 10000 | 10000 |

Account balance: 371,000
 Empty cargo space: 180
 Ship time: .379 years

Enter command? 3

Enter the lot number of cargo that you want to purchase? 1

Transaction completed
 Cargo stored in partition 1

Star Merchant

Account balance: 251,600
 Empty cargo space: 50
 Ship time: .782 years

Enter command? 5

| No. | Name | Trade Cl | Buy | Buy | Buy |
|-----|----------------|----------|------|------|------|
| 1 | Alphas 2100 | H.P. | 1000 | 1000 | 1000 |
| 2 | Alpha Centauri | H.P. | 1000 | 1000 | 1000 |
| 3 | Beta | H.P. | 1000 | 1000 | 1000 |
| 4 | Gamma Star | H.P. | 1000 | 1000 | 1000 |
| 5 | Delta | H.P. | 1000 | 1000 | 1000 |
| 6 | Epsilon | H.P. | 1000 | 1000 | 1000 |
| 7 | Zeta | H.P. | 1000 | 1000 | 1000 |
| 8 | Eta | H.P. | 1000 | 1000 | 1000 |
| 9 | Theta | H.P. | 1000 | 1000 | 1000 |
| 10 | Iota | H.P. | 1000 | 1000 | 1000 |
| 11 | Kappa | H.P. | 1000 | 1000 | 1000 |
| 12 | Lambda | H.P. | 1000 | 1000 | 1000 |
| 13 | Mu | H.P. | 1000 | 1000 | 1000 |
| 14 | Nu | H.P. | 1000 | 1000 | 1000 |
| 15 | Xi | H.P. | 1000 | 1000 | 1000 |
| 16 | Omicron | H.P. | 1000 | 1000 | 1000 |
| 17 | Pi | H.P. | 1000 | 1000 | 1000 |
| 18 | Rho | H.P. | 1000 | 1000 | 1000 |
| 19 | Sigma | H.P. | 1000 | 1000 | 1000 |
| 20 | Tau | H.P. | 1000 | 1000 | 1000 |
| 21 | Upsilon | H.P. | 1000 | 1000 | 1000 |
| 22 | Phi | H.P. | 1000 | 1000 | 1000 |
| 23 | Chi | H.P. | 1000 | 1000 | 1000 |
| 24 | Psi | H.P. | 1000 | 1000 | 1000 |
| 25 | Omega | H.P. | 1000 | 1000 | 1000 |

Account balance: 251,600
 Empty cargo space: 50
 Ship time: .782 years

Enter command? 6

Enter destination star number? 2

You have arrived at Alpha Centauri.

Expenses have been deducted as follows:
 Docking fee: 50,000
 Fuel: 400,000
 Crew salary: 11,600

You no longer have sufficient funds to operate your ship.

You began with 4 million credits and now have 8 credits.
 Cargo in the hold is worth 135000

This represents a loss of 3255624.607 credits per year.
 00



Streets of the City



Streets of the City was written by Kenneth R. Murray and originally appeared in the April 1981 issue of *Creative Computing*.

Congratulations! You have been named Transportation Director of River City, Michigan. River City is a central city with a declining population which is now at 185,000 persons. Budget problems over the past decade have resulted in a severely deteriorated road system and inadequate bus service.

Prior to your being hired, the City Commission approved a ten-year transportation improvement plan that will now be your responsibility to complete. In the Street Fund, the plan calls for reconstructing 44 miles of main streets, called primaries, and 16 miles of interstate. At the same time, you have to significantly improve the overall street conditions and traffic safety. For the Transit Authority, an aging bus fleet needs to be expanded and modernized, and ridership must be expanded.

Your success will be measured in two ways. The first is how well you progress each year in meeting the overall goal. Second is your ability to maintain a majority vote of the City Commission. Each influences the other.

Goals to be Achieved

In the initialization of the simulation, the initial conditions are randomly set. This includes the first budgets, street mileage and conditions, the traffic safety index, fleet size and age, and transit performance. The goals that you must achieve are as follows:

| Goals | Standard |
|---------------------------------|----------------------|
| Primary Street Reconstruction | Reconstruct 44 Miles |
| Interstate Highway Construction | Build 16 Miles |
| Street Condition Index | Reduce 60 Percent |
| Traffic Safety Index | Reduce 60 Percent |
| Bus Fleet Age | Reduce 60 Percent |
| Bus Ridership | Increase 4 Times |
| Fleet Downtime Index | Reduce 60 Percent |
| On-Schedule Performance Index | Reduce 60 Percent |

Highway Construction: The costs are initially set at random. Each year, costs will increase because of inflation. An inadequate maintenance program will also cause the construction costs to rise.

Street Conditions: A street condition index is randomly set; the higher the index, the worse the con-



dition. Each year the index is adjusted according to street mileage (total streets will be added in relation to inflationary pressures on development) and how well you budget for street maintenance. Your maintenance costs are determined by street mileage, street conditions, labor negotiations, and inflation.

Traffic Safety: A traffic safety index is also set randomly; again, the higher the index, the worse the traffic accident rate. This index is adjusted each year according to changes in the street conditions and how well you meet your maintenance and safety budget. The safety needs are determined by street mileage, the traffic safety index, labor negotiations, and inflation.

Age of Bus Fleet: The size and age of the fleet are randomly set and are incremented each year according to your sale and acquisition of buses. Sale is assumed on the basis of the oldest buses being sold first. Sale and purchase prices are influenced by inflation.

Ridership: Ridership is initially determined randomly. It is then affected by decisions on the number of routes, the hours of service, the days of service, and bus fare. The performance measures of downtime and on-schedule performance (referred to as service delay) and strikes will also affect ridership.

Fleet Downtime: This is measured by an index; the higher the index, the greater the downtime. The index is adjusted according to the age of the fleet and how well you meet your maintenance budget. The maintenance needs are determined by the size and age of the fleet, the level of service, labor negotiations, and inflation.

Service Delay: The higher the service delay index, the poorer your on-schedule performance. This index is determined by the size of the fleet relative to the number of routes, downtime, and meeting your operational budget. Operating needs are affected by the number of routes, hours and days of operation, labor negotiations, and inflation. You should not let the average number of buses per route drop below three.

Transit Authority Service Decisions

In this phase you determine the level of transit service you will have for the year. Your decisions and ranges are as follows:

| Service | Initial Value | Range of Options |
|----------------------------|---------------|------------------|
| Routes | 6 | 6 to 25 |
| Hours of Operation Per Day | 12 | 12, 17, or 24 |
| Days of Operation | 6 | 6 or 7 |
| Fare | \$35 | \$25 to \$1.00 |

Bonding

In years 3 and 7, you will have the option of seeking authority to borrow money (in the form of bonds) for street construction. In year 3, the bond limit is \$1.5 million, and in year 7, it is \$2.0 million, each per year. You do not have to request the entire amount. The City Commission will decide what size of a bond issue to put to a vote of the citizens. The Commission decision will depend upon the size of the bond requested and your support among the Commission members. Once the issue is submitted to a vote, you will be asked to make certain pledges to the Coalition of Neighborhood Associations. Making the pledges will improve the chance of passage; however, if you fail to keep your pledges, you will be penalized severely.

Property Taxes

In this phase you will ask the City Commission to levy up to ten mills of property tax for street and transit operation. The amount that is approved will depend upon your support of the Commission and the size of the levy requested. The tax that is approved must then be divided between streets and transit. If you are too greedy, the chances that the Commission will approve a less-than-adequate property tax increase.

The amount of the property tax base is set at the start of the simulation. Each year it changes according to inflation, street improvements, and bus ridership. The theory is that with streets and more bus riders, property values will increase. Conversely, with poorer streets and fewer riders, property values will decrease.



Street Fund Budget

Once the tax levy is determined, you must decide how much to spend from the Street Fund on maintenance, safety, and construction. You will be able to transfer money from the operating account to the capital account and vice versa. The percentage that you can shift will change according to the amount of bonds you have issued. Your operating revenue, which includes funds left over from the previous year, gasoline taxes, and tax levy, is automatically adjusted to delete bond payments. Gasoline tax revenue is initially calculated at the start of the simulation based on street mileage and vehicle miles, then adjusted according to mileage changes and inflation. It is not a variable over which you have control. The construction budget, exclusive of bonds, is similarly set.

In making your maintenance and safety decisions, you should remember that the needs shown are the minimum amounts necessary to keep the maintenance and safety indexes approximately the same. Reducing the indexes requires more than the minimum appropriation.

Transit Budget

You have a similar set of decisions to make on the Transit Authority budget. Operating revenues include rider fare (ridership times fare), a federal subsidy which is automatically set at half of the operating and maintenance needs for the year and tax revenues. The capital budget consists of revenues from the sale of buses and from occasional federal grants. You may transfer up to 25% of the operating revenues to acquisition, but you may not use the capital fund for operations. By random determination, you may receive a federal grant for fees acquisition. In those years you cannot transfer funds from the operating account. Your decision whether to buy and/or sell buses depends upon your fleet needs. Remember that buses add to maintenance costs, whether you need them or not. A rule of thumb is that three buses are needed per route. Again, the operating and maintenance needs are minimums necessary to hold the indexes about the same.

Labor Negotiations

The final phase of decision making is labor negotiations for the next year. The outcome of the negotiations directly affects your operating and maintenance budget for streets and the Transit Authority.

There will be between two and six rounds of negotiations, with the Union making the first offer. Subsequent union offers will depend upon how willing you are to bargain in good faith. If you reach settlement, excellent. If you do not reach settlement, you risk a strike. The possibility of a strike depends upon the beginning and ending positions of the two parties and how much each has changed its position. A strike negatively affects your performance for the year in which it occurs, so you should not risk one lightly.

Performance Review

Once you have completed the decision process, you will be given a comparison of the effects of your decisions this year against the past year and against the fiscal plan. You will also be shown a graphic display of the status of your street construction. Your general performance will be evaluated and you will be told the strengths and weaknesses of your performance. Depending on your performance, you can gain or lose support among the Commissioners. You begin the game with the unanimous support of all eleven Commissioners.

End of the Game

The game can end in one of three ways. The most desirable, and the one requiring the most political acumen, is for you to satisfactorily complete the transportation plan. The second way is to serve out the ten years but not complete the plan, which results in a demerit for you. The third ending is that you will be asked to resign. This will happen if you fail to keep the support of at least six Commissioners. And, it's easier to lose votes than it is to gain them. Good luck on your new job!

Streets of the City

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1 CLEAR 1500:DEFSTR P:FOR T(1)5,T(6),11,T(8),10,T(4),2,T(7),100
2 DIM S(2,10),S(3,11),S(10),M(10):C0=C0+9999307,S0=C0+111100+C0+9999307
3 CLRPRINT # 24,"Streets of the City"
4 PRINT # 471,"Creative computing"
5 PRINT # 270,"By Kenneth S Murray"
50 FOR S=1 TO 150:INSTR
100 CLRPRINT"CONGRATULATIONS YOU HAVE BEEN NAMED TRANSPORTATION"
105 PRINT"DIRECTOR OF RIVER CITY, MICHIGAN, A CENTRAL CITY WITH"
110 PRINT"A BEGLINING POPULATION AND WHICH HAS SUFFERED DEGRADATION"
115 PRINT"OF ITS TRANSPORTATION SERVICES OVER THE LAST SEVERAL YEARS."PRINT
120 PRINT"INSTEAD TO YOUR BEING NAMED, THE CITY COMMISSION ADOPTED"
125 PRINT"A TEN-YEAR TRANSPORTATION PLAN TO RESTORE SERVICES FOR"
130 PRINT"BOTH STREETS AND HIGHS TO AN APPROPRIATE LEVEL. IT WILL BE"
135 PRINT"YOUR RESPONSIBILITY TO CARRY OUT THIS PLAN."PRINT
140 PRINT"FOR THE STREET FUND, YOU WILL NEED TO CONSTRUCT SEVERAL"
145 PRINT"MILES OF INTERSTATE HIGHWAYS AND RECONSTRUCT MAJOR LOCAL"
150 PRINT"STREETS (CALLED PRIMARIES). YOU WILL ALSO NEED TO IMPROVE"
155 PRINT"STREET CONDITIONS AND TRAFFIC SAFETY."PRINT
164 S(1,1)="ROADWAY":S(2,1)="FLEET AGE":S(3,1)="DOWNTIME":S(4,1)="SERVICE DELAY"
165 S(5,1)="FLEET SIZE"
170 T(1,1)="PRIMARY ST. MILEAGE":T(2,1)="INTERSTATE MILEAGE"
180 T(4,1)="STREET CONDITION INDEX":T(5,1)="TRAFFIC SAFETY INDEX"
190 T(6,1)="LOCAL ST. MILEAGE":T(8,1)="VEHICLE MILES"
1000 P0="#####.###":P1="#####.###":P2="#####.###"
1002 FOR B=1 TO 8
1003 FOR C=1 TO 3
1004 READ A(1,C)
1005 NEXT C
1006 NEXT B
1007 DATA 128,191,384,431,846,687,704,767,696,659
1008 DATA 15,978,31,891,87,807
1009 T(0,C)=11*G1+P1*C+P2*S:G1=50:P1=140000:P2=70000+S0=5000*1000
1010 C1=11*G2+P1+S0:G2=1000:1000000/12
1011 M1=500:5000)+35000
1012 T(1,Y0)=500+500:G1+T(3,Y0)=S0+M1*(15+T(3,Y0)=0
1013 T(4,Y0)=500:G1+T(3,Y0)=14+T(3,Y0)=500:144
1014 X0=3000+500:3000):S0=7000+500:3000):S2=20000+500:40000
1015 T(6,Y0)=128*T(1,Y0)+100*T(3,Y0)
1016 T(8,Y0)=16.6*Y0+7.6:PP=PP+T(1,Y0)+110+500:20:1):G1,T(8,Y0)=T(1,Y0)+PP
1017 T(2,Y0)=1
1018 T(3,Y0)=1+500+500:1000)+300000+T(8,Y0)=T(3,Y0)
1019 M=(T(1,Y0)*M1)+S0*(T(6,Y0)+1):G1+T(3,Y0)*M1)+S0*(4,Y0)+1):T(3,Y0)*M1)
1020 G0=M+G0*(14+T(3,Y0)+T(8,Y0)+M1*(1,Y0)=28
1021 S(1,Y0)=500:350)+30000+50000
1022 S(3,Y0)=247+500:10:15)
1023 S(4,1)=INT(500:1000)+5000)
1024 FOR B=1 TO S(3,Y0)
1025 R=(X)=INT(500:12)+1)
1026 NEXT X:GOTO 5798
1027 S=(500:1000+500)*.01+5+6:G2=11:G3=6:G4=5:(51*G3*G3+11*G4+9)
1028 S4=(Y0+1,Y0)=4000:500:1000)+20000)
1029 S(3,Y0)=INT(S(2,Y0)/3)+6+500:10:1):S(4,Y0)=INT(S(1,Y0)/3)+6+500:10:1)
1030 S(1,Y0)=S(1,Y0)-11*(S(2,Y0)+S(4,Y0)+.01)*T(3,Y0):S0=S0+P2+G0+G1+1:500+P2
1031 T(4,1)=INT(T(4,Y0)+.4):T(5,1)=INT(T(5,Y0)+.4):S(1,1)=INT(1,80)4
1032 S(2,1)=INT(S(2,Y0)+.4):S(3,1)=INT(S(3,Y0)+.4):S(4,1)=INT(S(4,Y0)+.4)
1033 T(2,1)=S0+T(3,Y0):T(3,1)=28
1034 INPUT"PLEASE ENTER":S(10)PRINT"FOR THE THROUGH AUTHORITY, YOU MUST REPLACE A"
1041 PRINT"DELEGATED BUS FLEET, INCREASE HIGHWAY, REDUCE THE"
1042 PRINT"MAINTENANCE DOWNTIME, AND IMPROVE ON-SCHEDULE PERFORMANCE"
1043 PRINT"(ALSO REFERRED TO AS SERVICE DELAY)."PRINT
1044 PRINT"FOR ALL INDICES USED, THE HIGHER THE INDEX VALUE THE"
1045 PRINT"BETTER THE CONDITION INDICATED. THE HIGHER VALUES LISTED"
1046 PRINT"ARE THE MINIMUMS NEEDED TO MAINTAIN THE INDEX AT ITS"
1047 PRINT"PRESENT LEVEL. IMPROVING THE LEVEL REQUIRED SUGGESTS THAT"
1048 PRINT"ARE HIGHER THAN THE MINIMUMS NEEDED."PRINT#700,"PLEASE ENTER":INPUT I
1049 CLRPRINT"PRINT"YOUR GOALS FOR THE PLAN ARE AS FOLLOWS:"PRINT
1050 PRINT"STANDARD":TAB(30)"PRESENT":TAB(45)"GOAL"
1051 PRINT
1052 FOR X=2 TO 9:PRINT TAB(1):TAB(30)T(X,Y0):TAB(45)T(X,11):NEXT X
1053 PRINT
1054 FOR X=1 TO 4
1055 IF X=1 THEN 2058
1056 PRINT S(X):TAB(30)S(X,Y0):TAB(45)S(X,11):NEXT X
1057 GOTO 2060
1058 PRINT S(X):TAB(30):PRINT USING PR0(X,Y0):PRINT TAB(45):
1059 PRINT USING PR1(S,11):NEXT X
1060 PRINT"GOOD LUCK":PRINT#705,"PLEASE ENTER":INPUT I
1061 Y0=Y0+1

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Streets of the City

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3288 IF S2(11)=0 AND S2(11)=02=7 THEN S2=22+(1000(15000)+50000)*S1
3289 IF S2(11)=0 AND S2(11)=02=12 THEN S2=22+(1000(15000)+110000)*S1
3291 IF S2(11)=0 AND S2=03(11)=5 THEN S2=22+(1000(15000)+75000)*S1
3292 IF S2(11)=0 AND S2=03(11)=7 THEN S2=22+(1000(15000)+90000)*S1
3293 IF S2(11)=0 AND S2=03(11)=12 THEN S2=22+(1000(15000)+110000)*S1
3294 IF S2(11)=0 AND S2(11)=0 THEN S2=22+(100(150)*500)*S1(12)=22
3295 IF S2(11)=0 AND S2(11)=0 THEN S2=22+(100(150)*1500)*S2(11)=22
3296 IF S2(11)=0 AND S2(11)=24 THEN S2=22+(100(150)*150)*S2(11)=22
3297 IF S2(11)=0 THEN S2=S2(11)
3298 IF S2(11)=0 THEN S2=S2(11)
3299 IF S2(11)=0 THEN S2=S2(11)
3300 IF S2(11)=0 THEN S2=S2(11)
3302 S2(1)=0+S2(11)=0+S2(11)=0+S2(11)=0
3303 IF Y2=3 OR Y2=7 THEN 3304 ELSE 3660
3304 IF Y2=3 THEN S1=1500000 ELSE S1=2000000
3309 CLR:PRINT TAB(15)"STREET FUND BOND PROPOSAL",PRINT
3310 PRINT"YOU MAY PROPOSE BONDING UP TO":PRINT USING FA(1)
3311 PRINT"SUBJECT TO"
3315 PRINT"APPROVAL OF THE CITY COMMISSION AND A VOTE OF THE"
3320 PRINT"CITIZENS. HOW MUCH DO YOU WISH TO PROPOSE (in"
3325 INPUT"THOUSANDS, TYPE '0' IF NONE)":I
3326 IF I=0 THEN 3675
3330 I=I*1000:IF I=0 OR I=0 THEN 3300:G1=I
3335 IF I=4 THEN S1=S1-(S1(15)*10000)
3340 IF I=10 THEN S1=S1-(S1(15)*10000)
3345 IF I=20 THEN S1=S1-(S1(15)*20000)
3350 PRINT"THE COMMISSION HAS APPROVED A BOND REFERENCE"
3355 PRINT"FOR"
3356 PRINT USING FA(1)
3360 CLR:PRINT"THE COMMISSION HAS AGREED TO"
3361 PRINT
3365 PRINT"YOU TO MAKE THE FOLLOWING PLEDGES FOR THE NEXT TERM"
3370 PRINT"YEARS. WILL YOU MAKE ANY OF THEM (Y/N)?"
3375 IF Y(1,2)=Y(1,4),0 THEN S2=Y(1,4),0 ELSE S2=Y(1,4),0-1
3380 IF S2=1 THEN S2=1
3385 IF Y(1,5)=Y(1,5),0 THEN S2=Y(1,5),0 ELSE S2=Y(1,5),0-1
3390 IF S2=1 THEN S2=1
3395 IF S1=22 THEN S4=44-G1 ELSE S4=22
3400 IF S2=1 THEN S5=16-G3 ELSE S5=8
3405 PRINT TAB(5)"1. IMPROVE STREET CONDITION INDEX TO":S4
3410 PRINT TAB(5)"2. IMPROVE SAFETY INDEX TO":S5
3415 PRINT TAB(5)"3. CONSTRUCT":S4"MILES OF PRIMARY":
3420 PRINT TAB(5)"4. CONSTRUCT":S5"MILES OF INTERSTATE":
3425 PRINT"PLEDGE 1":TAB(15)"PLEDGE 2":TAB(30)"PLEDGE 3":
3430 PRINT TAB(45)"PLEDGE 4":PRINT$32,C5
3435 PRINT$32,1
3440 INPUT S3
3445 IF S3="Y" AND S2="N" THEN 3465
3450 IF S3="N" THEN S3=0
3455 PRINT$34,C5
3460 PRINT$34,1
3465 INPUT S3
3470 IF S3="Y" AND S2="N" THEN 3480
3480 IF S3="N" THEN S3=0
3485 PRINT$36,C5
3490 PRINT$36,2:INPUT S3
3495 IF S3="Y" AND S2="N" THEN 3495
3495 IF S3="N" THEN S3=0
3499 PRINT$36,7,C5
3500 PRINT$36,7,0:INPUT S3
3505 IF S3="Y" AND S2="N" THEN 3495
3510 IF S3="N" THEN S3=0
3515 PRINT$36,0,"PLEDGES ENTER FOR ELECTION RESULTS":
3520 INPUT S2:CLR:PRINT TAB(10)"BOND ELECTION RESULTS"
3525 PRINT"PRINT"MAN":TAB(10)"YES":TAB(20)"NO":TAB(30)"TOT. YES":TAB(50)"TOT. NO
3530 PRINT"Y":S1/S2
3535 IF C2=9 THEN V1=5000 ELSE S1=10000
3538 IF Y(1,2)=Y(1,4),0-1 AND Y(1,5)=Y(1,5),0 THEN V1=Y(1,5)
3540 IF Y(1,5)=Y(1,5),0-1 AND Y(1,5)=Y(1,5),0 THEN V1=Y(1,5)
3545 IF Y2=7 THEN 3535
3550 IF S1=1500000 THEN V1=Y(1,5)
3555 GOTO 3535
3560 IF S1=1500000 THEN V1=Y(1,5)
3565 IF S2=0 THEN V1=Y(1,5)
3570 IF S3=0 THEN V1=Y(1,5)
3575 IF S4=0 THEN V1=Y(1,5)
3580 IF S5=0 THEN V1=Y(1,5)
3585 S2=S2(15)
```



Streets of the City

```
3540 FOR X=1 TO 5
3545 IF X=2 THEN 3548
3575 Y3=Y1*W3*(11000)
3580 GOTO 3590
3585 Y3=(Y1/2)+W3*(11000)
3590 IF Y3<0000 THEN Y3=0000
3595 Y4=21000-Y3,Y5=Y3+Y3*Y3+Y3
3595 PRINT TAB(2);TAB(9);Y3;TAB(19);Y4;TAB(35);Y5;TAB(50);Y6
3600 FOR Y=1 TO 500;NEXT Y
3605 NEXT X
3610 IF Y5=0 THEN 3650
3615 PRINT;PRINT"CONGRATULATIONS. THE BOND ISSUE HAS APPROVED BY"
3620 PRINT"THE VOTERS. YOUR ANNUAL BOND PAYMENT WILL BE";
3625 C=C+CVT*.4
3630 PRINT USING PA:W
3635 Y5(Y3)-Y5(Y3)+W1*Y3*Y3
3640 INPUT;PRINT"ENTER";GOTO 3680
3645 PRINT"THE REFERENDUM HAS FAILED."
3650 IF Y4/(Y5+W3)>155*W3(15)||".01 THEN 3675
3655 PRINT"BECAUSE OF THE MARGIN OF DEFICIT, YOU HAVE LOST"
3660 PRINT"THE JOB OF A COMMISSIONER."; C=C-Y-1
3665 IF C<0 THEN 3770
3670 A1=0;B1=0;C3=0;W4=0;B5=0
3675 PRINT;INPUT;PRINT"ENTER"
3680 CLR;PRINT TAB(18)"PROPERTY TAX LEVY"
3685 W5=(51*Y2*W3*W3)/W4;W6=W2-W5*(W5*.1)+W1;Y6=W1;Y7=(W4+W5+W6)/2
3690 PRINT TAB(30)"STREET FUND";TAB(45)"TRANSIT AUTHORITY"
3695 PRINT"OPERATING NEEDS";TAB(60);PRINT USING PA;W5;W6;W7;PRINT TAB(45);
3695 PRINT USING PA;W5;W6
3695 PRINT"NON-TAX REVENUE";TAB(80);PRINT USING PA;Y6;Y7;PRINT TAB(45);
3700 PRINT USING PA;W1;Y6
3705 PRINT"PROPERTY TAX NEEDED (MILLS)";PRINT TAB(30);
3710 PRINT USING PA;W5;W6+W3+Y6*Y6;PRINT TAB(45);
3715 PRINT USING PA;W3+W5+W6;PRINT
3720 Y8=INT((W3+W5+W6*Y6+Y6*Y6)/Y7)*100*.1;PRINT
3725 PRINT"TOTAL PROPERTY TAX NEEDED (IN MILLS) IS";Y8
3730 PRINT;PRINT"WHAT PROPERTY TAX LEVY (0-10 MILLS) DO YOU PROPOSE?"
3735 INPUT Y9;Y9=0 AND Y9<10 THEN 3735
3740 PRINT;PRINT"YOU CANNOT EXCEED THE LIMITS";PRINT;GOTO 3710
3745 IF Y9<0 OR Y9>10 THEN 3750
3750 A1=0;A2=0
3755 FOR X=1 TO 11
3760 IF X=9 THEN 3785
3785 IF X<=C3 THEN A1=W3(5) ELSE A1=W3(8)
3790 GOTO 3785
3795 IF X=2 THEN A2=W3(4)
3795 IF X=2 AND X<=C3 THEN A1=W3(5);IF X=C3 THEN A2=W3(8)
3795 IF X=3 THEN A1=A1+1 ELSE A2=A2+1
3795 NEXT X
3800 IF A1=4 THEN 3801
3800 IF Y9(2,Y9) THEN Y9(2,Y9)+Y9(2,Y9) ELSE Y9(2,Y9)+Y9(2,Y9)+.1*(Y9(2)+1)
3801 Y9(1)=Y9(1)+Y9(2);IF Y9(2,Y9) THEN Y9(2,Y9)+.1*(Y9(2)+1)
3805 PRINT;PRINT"THE CITY COMMISSION HAS APPROVED A LEVY OF";Y9(2);Y9(1)"MILLS"
3810 PRINT;PRINT"HOW MANY MILLS ARE FOR THE STREET FUND?";INPUT Z;PRINT;Z;
3815 IF Z>=Y9(2,Y9) THEN 3825
3820 PRINT;PRINT"YOU CANNOT ALLOCATE MORE THAN YOU ARE AUTHORIZED";PRINT;Z;
3821 GOTO 3800
3825 Y8(Y8,Y8)+Y8(Y8,Y8)+.1*(Y8(Y8)+Y8(Y8)+.1*(Y8(Y8)+Y8))
4000 CLS;C=C+GOTO 4020
4010 C=1
4020 CLR;PRINT TAB(30)"STREET FUND BUDGET DECISIONS FOR YEAR";Y8
4030 PRINT"OPERATIONS";TAB(35)"CONSTRUCTION";
4040 PRINT TAB(55)"AVAILABLE";
4045 PRINT USING PA;Y8(Y8,Y8)
4050 PRINT TAB(35)"AVAILABLE";PRINT USING PA;Y8(Y8,Y8)
4060 PRINT TAB(55)"SAFETY NEEDS";PRINT USING PA;W5
4070 PRINT TAB(35)"COST PER HALF MILE UNIT";
4080 PRINT TAB(55)"SAFETY NEEDS";PRINT USING PA;W5
4090 PRINT TAB(35)"PRIMARY RDG.";PRINT USING PA;C1*.1
4100 PRINT TAB(35)"INTERSTATES";PRINT USING PA;C1
4110 PRINT;IF C=1 THEN 4200
4120 PRINT"YOU MAY TRANSFER UP TO ";C2"% FROM AN ACCOUNT"
4130 PRINT TAB(10)"3. OPERATIONS TO CONSTRUCTION"
4140 PRINT TAB(10)"3. CONSTRUCTION TO OPERATIONS"
4150 PRINT TAB(10)"3. NO TRANSFER "
4160 INPUT Z;IF Z=1 AND Z<=3 AND Z>=3 THEN 4020
4165 IF Z=1 THEN 4010 ELSE 4200
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Streets of the City

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4200 INPUT HOW MUCH DO YOU WANT TO TRANSFER (IN THOUSANDS, WITHOUT $ SIGN):T
4201 T=T*1000
4210 IF B=1 AND T=TRUNC(YR1/18*.01) THEN 4200
4220 IF B=2 AND T=TRUNC(YR1/18*.01) THEN 4200
4230 IF B=2 THEN 4230
4240 TR1(YR1-YR18, YR1)-P=TR18, YR1-TR1(YR1)=GOTO 4000
4250 TR18, YR1-TR18, YR1)+P=TR18, YR1-TR1(YR1)=GOTO 4000
4260 PRINT ENTER CONTRIBUTION BY THE NUMBER OF HALF MILE UNITS:"
4270 PRINT ENTER MAINTENANCE AND SAFETY IN THOUSAND DOLLAR UNITS."
4280 PRINT DO NOT USE COMMAS OR DOLLAR SIGNS"
4290 PRINT PRINT TAB(10)"PRIMARIES";TAB(20)"INTERSTATES";TAB(30)"MAINTENANCE";
4301 PRINT TAB(5)"SAFETY"
4310 PRINT LAST 50";TAB(10)PC;TAB(20)IC
4320 PRINT TAB(10);
4331 PRINT USING PA;TR18, YR-1;
4340 PRINT TAB(50);
4350 PRINT USING PA;TR17, YR-1;
4360 PRINT THIS YR";
4370 PRINT#44.;
4380 INPUT PC
4391 PRINT#44,PC;
4400 IF INT(PC)/=PC THEN 4390
4410 IF CL=(PC/2)+44 THEN 4390
4420 PRINT#44.;
4431 INPUT IC
4441 PRINT#44,IC;
4450 IF INT(IC)/=IC THEN 4390
4460 IF T(1, YR1)=(IC/2)+14 THEN 4390
4470 IF LCM(IC, 2)>(IC/2)+TR18, YR1 THEN 4397
4480 PRINT#44,; INPUT T1;T1=T1*1000
4497 PRINT#44, IC; I=FLCM(STR$(T1))-(LEN(STR$(X)))+1;OVL=100000*TRUNC(OVERFLOW/1000000)
4500 IF IS="Y" THEN 4330
4510 IS="Y";PRINT#44, IS;GOTO 4330
4520 PRINT#44,; INPUT T2;PRINT#44, IS; T2=T2*1000
4530 I=FLCM(STR$(T2))-(LEN(STR$(X)))+1 OR T2=100000*TRUNC(OVERFLOW/1000000)
4540 I=IS="Y" THEN 4330
4550 IS="Y";PRINT#44, IS;GOTO 4330
4560 IF T3=T3+TR18, YR1 THEN 4400
4570 GOTO 4440
4580 PRINT#44, "YOU MUST ENTER A WHOLE NUMBER.";
4591 PRINT#44, IS;GOTO 4330
4592 PRINT#44, "YOU CAN BUILD ONLY";(44-IC)/2;" MORE HALF MILE UNITS";GOTO 4391
4593 PRINT#44, "YOU MUST ENTER A WHOLE NUMBER.";
4594 PRINT#44, IS;GOTO 4330
4595 PRINT#44, "YOU CAN BUILD ONLY";(10-T1)/2;" MORE HALF MILE UNITS.";
4596 GOTO 4394
4597 PRINT#44, "YOUR CONTRIBUTION PROGRAM EXCEEDS YOUR BUDGET.";
4598 PRINT#44, CL;PRINT#44, IS;GOTO 4330
4599 PRINT#44, IC;PRINT#44, "ARE YOU SURE [Y/N]";
4600 INPUT IS;IF IS="Y" AND IS="N" THEN 4390
4601 RETURN 990
4602 PRINT#44, IS;PRINT#44, "ARE YOU SURE [Y/N]";
4603 INPUT IS;IF IS="Y" AND IS="N" THEN 4600;IF IS="Y" THEN 4330
4604 PRINT#44, IS;GOTO 4330
4605 PRINT#44, "YOUR MAINTENANCE AND SAFETY BUDGET EXCEEDS YOUR FUNDS";
4606 PRINT#44, IS;PRINT#44, IS;GOTO 4330
4610 TR18, YR1-T1=TR17, YR1-T2
4615 T1, YR1-T1, YR1)+PC/2;T1, YR1-T1, YR1)+IC/2
4620 TR18, YR1-TR18, YR1)-TR18, YR1)-TR17, YR1
4630 TR18, YR1-TR18, YR1)-PC/PC;TR18, YR1)-IC/IC;
4640 PRINT#44, "EXCESS BUDGET"; INPUT Z
4650 T14, YR1-T14, YR1-1;INT(1/18*TR18, YR1-TR18, YR1)/18;T14, YR1-T14, YR1-1
4660 IF T14, YR1-1 THEN T14, YR1-1
4670 T15, YR1-T15, YR1-1;INT(1/18*TR17, YR1-TR17, YR1)/18;T15, YR1-T15, YR1-1
4680 IF T15, YR1-1 THEN T15, YR1-1
4690 CL=O=0;GOTO 4000
4700 C=1
4710 CLR;PRINT TAB(15)"TRANSFER BUDGET FOR YEAR";IC
4720 PRINT OPERATIONS";TAB(20)"RED FLEET"
4730 PRINT TAB(15)"AVAILABLE";PRINT USING PA;R11, YR1;PRINT TAB(30)"AVAILABLE";
4740 PRINT USING PA;R12, YR1
4750 PRINT TAB(15)"MAINT. NEED";PRINT USING PA;R2;PRINT TAB(30)"COST FOR RED";
4760 PRINT TAB(15)"OPERATIONS NEED";PRINT USING PA;R3;
4770 PRINT TAB(30)"ACQUISITION";PRINT USING PA;P1
4780 PRINT TAB(30)"SALE";PRINT USING PA;P2
4790 IF C=1 THEN 6340
4800 IF GO=0 THEN PRINT#44, "BECAUSE OF THE FEDERAL GRANT, YOU CAN'T TRANSFER FROM

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Streets of the City

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6121 PRINT#104,"OPERATIONS TO THE GAS FLEET";FORM=110700;NEXT;GOTO#1000
6140 PRINT#640,"YOU MAY TRANSFER UP TO 254 FROM OPERATIONS TO ACQUISITION"
6142 PRINT#640,END
6150 PRINT#704,"HOW MANY PROGRAMS DO YOU WANT TO TRANSFER (NO $ SIGN)?"
6161 INPUT X1:IF X1<0 THEN X1=0;IF X1>254 THEN X1=254 ELSE X1=X1
6160 PRINT#640,X1;PRINT#704,END;GOTO 6240
6170 X1=X1-1;X1=X1<0 THEN X1=0;X1=X1>254 THEN X1=254
6200 PRINT#640,END;PRINT#704,END
6210 PRINT#640,"HOW MANY BUSES DO YOU WISH TO SELL";INPUT M
6211 IF M<0 THEN M=0;IF M>254 THEN M=254;IF M<0 THEN M=0
6230 PRINT#640,END;GOTO 6210
6240 IF M=0 THEN GOTO 6250
6250 FOR X=1 TO M:GOTO 6260
6270 FOR X1=1 TO 100:IF M*(X1)=0 THEN GOTO 6280
6280 IF M*(X1)=0 THEN GOTO 6310
6290 C2=M*(X1);C2=X1
6310 NEXT X1:M*(C2)=0;NEXT X
6330 S(5,YS)=S(5,YS)-M
6341 S(2,YS)=S(2,YS)+(M*(X2));GOTO 6410
6340 PRINT;PRINT;ENTER BUSES IN THOUSAND DOLLAR UNITS. DO NOT
6350 PRINT;PRINT;USE COMMAS OR DOLLAR SIGNS"
6360 PRINT;PRINT;TAB(20);"MAINTENANCE";TAB(30);"OPERATIONS";TAB(50);"NEW BUSES"
6370 PRINT;PRINT;TAB(20);TAB(20);PRINT USING PA:END;PRINT;TAB(51);
6371 PRINT USING PA:END;PRINT;TAB(53);END
6375 PRINT;"THIS YEAR";
6400 PRINT#703,;INPUT M;PRINT#640,END;M=0;M=1000
6401 IF M=0 THEN GOTO 6420
6402 IF M=0 THEN GOTO 6400
6403 IF M=100000 THEN GOTO 4399 ELSE GOTO 6410
6404 IF M="Y" THEN GOTO 6410
6405 M="Y";PRINT#641,END;GOTO 6400
6410 IF LEN(M) < 10 THEN M=LEN(M)+1 THEN GOTO 6400
6420 PRINT#640,;INPUT M;PRINT#640,END;M=0;M=1000
6421 IF M=0 THEN GOTO 6420
6422 IF M=0 THEN GOTO 6420
6423 IF M=100000 THEN GOTO 4399 ELSE GOTO 6430
6424 IF M="Y" THEN GOTO 6430
6425 PRINT#641,END;GOTO 6420
6430 IF LEN(M) < 10 THEN M=LEN(M)+1 THEN GOTO 6430
6440 IF M=0 THEN GOTO 6440
6450 PRINT#640,;INPUT M;PRINT#640,END;
6460 IF M=0 THEN GOTO 6460
6470 IF M=0 THEN GOTO 6470
6471 IF M=0 THEN GOTO 6480
6472 PRINT#640,C2;GOTO 6450
6473 IF M=0 THEN GOTO 6480
6480 IF M=0 THEN GOTO 6480
6490 IF M=0 THEN GOTO 6490
6500 FOR X=1 TO M
6510 FOR X1=1 TO 100
6520 IF M*(X1)=0 THEN GOTO 6540
6530 M*(X1)=0
6540 X=X+1
6550 IF X=254 THEN GOTO 6560
6560 NEXT X1
6570 NEXT X
6580 S(2,YS)=S(2,YS)-(M*(X1));S(1,YS)=S(1,YS)-(M*(X1))
6590 S(5,YS)=S(5,YS)+M
6600 M=M-1;IF M=0 THEN GOTO 6610
6610 M=M-1;IF M=0 THEN GOTO 6610
6620 PRINT#702,END;GOTO 6800
6630 PRINT#640,"ARE YOU SURE (Y/N)";INPUT M
6640 IF M="Y" AND M="N" THEN GOTO 6600;IF M="Y" THEN GOTO 6420
6650 PRINT#702,END;GOTO 6800
6660 PRINT#640,"ARE YOU SURE (Y/N)";INPUT M
6670 IF M="Y" AND M="N" THEN GOTO 6630;IF M="Y" THEN GOTO 6440
6680 PRINT#640,END;GOTO 6420
6690 PRINT#640,"YOUR OPERATING AND MAINTENANCE BUSES EXCEED YOUR FUNDS";
6700 PRINT#702,END;PRINT#640,END;GOTO 6400
6710 PRINT#640,"YOU CAN PURCHASE ONLY 100-254 BUSES";GOTO 6400
6720 PRINT#640,"YOU CANNOT ENTER A NEGATIVE NUMBER";RETURN;END
6730 PRINT#640,"YOUR PROPOSED ACQUISITION EXCEEDS YOUR BUDGET";PRINT#640,C2
6740 GOTO 6400
6750 PRINT#640,"YOU MUST ENTER A WHOLE NUMBER";PRINT#640,C2;GOTO 6400
6760 S(2,YS)=S(2,YS)-(M*(X1));S(1,YS)=S(1,YS)-(M*(X1))
6770 IF S(2,YS) < 0 THEN S(2,YS)=0;S(1,YS)=S(1,YS)+2
6780 IF S(3,YS) < 1 THEN S(3,YS)=1
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Streets of the City

```
4755 S14,YR1=554,YR1-1)END(100=50/YR1*100*,1)
4756 IFS13,YR1=513,YR1-1)THEN(S1,YR1=513,YR1*2
4757 IFS13,YR1=513 THEN S14,YR1=514,YR1=3
4758 IFS14,YR1=51 THEN S14,YR1=1
4759 S13,YR1=513,YR1=541-(1013,YR1=514,YR1=513,YR1-2)-(514,YR1-1))YR1,YR1*0.1)
10030 REM SALARY NEGOTIATIONS
10040 NR=500(1-3)+311*1000:IF I=0 THEN U(1)=INT(NR*(I+R)) ELSE U(1)=INT(NR*(1+R))
10060 CLR:L=0
10070 PRINT"YOUR PRESENT WAGE IS":L:"DOLLARS PER HOUR"
10110 PRINT"THE UNION'S INITIAL OFFER IS FOR A":U(1):"PERCENT INCREASE"
10120 INPUT"WHAT IS YOUR RESPONSE";M(1)
10130 CLR
10140 PRINT"PRESENT SALARY=":L
10160 PRINT"PRESENT UNION","MANAGEMENT"
10170 PRINT"POSITION","POSITION"
10180 PRINT
10190 PRINT U(1),M(1)
10200 FOR X=2 TO NR
10210 IF X=NR THEN 10240
10220 PRINT"THIS IS THE LAST ROUND OF NEGOTIATIONS. FAILURE"
10230 PRINT"TO SETTLE COULD RESULT IN A STRIKE"
10240 U0=U(X-1)+M(X-1):IF U0=0 THEN 10250 ELSE 10270
10250 U(1)=M(X-1)+U0
10260 GOTO 10440
10270 IF M(X-1)-M(X-2)>5 THEN S3=1
10280 IF M(X-1)-M(X-2)>15 THEN S3=2
10290 IF M(X-1)-M(X-2)>30 THEN S3=3
10300 IF M(X-1)-M(X-2)>40 THEN S3=4
10310 IF U0>5 THEN U(1)=U(X-1)-(RND(40)*.11/Y3)
10320 IF U0>10 OR U0>5 THEN U(1)=U(X-1)-(RND(40)*.11/Y3)
10330 IF U0>15 THEN U(1)=U(X-1)-(RND(60)*.11/Y3)
10340 IF U0>20 THEN U(1)=U(X-1)-(RND(100)*.11/Y3)
10350 IF U(1)=M(X-1) THEN U(X)=M(X-1)
10360 U(1)=INT(U(X)*100*.01
10370 S=M(X)
10380 PRINT U(1),
10390 IF U(X)=M(X-1) THEN 10440
10400 INPUT M(X)
10410 IF M(X)=U(X) THEN 10440
10420 NEXT X
10430 IF M(NR)<U(NR) THEN 10440
10440 S=INT(S*(100+U))*.01
10450 PRINT"YOU HAVE REACHED AGREEMENT ON A":U:"PERCENT"
10460 PRINT"WAGE INCREASE. YOUR HOURLY WAGE RATE IS NOW S":S:"
10480 GOTO 10540
10490 IF (U(NR)-M(NR))*SND(10)>.5 THEN 10500
10500 U(NR)=M(NR):G=U(NR)
10501 GOTO 10440
10502 CLR
10503 PRINT#116,"WORKERS":(RND(9999),LOCAL":PRINT#116,"10000":
10504 FOR X=1 TO 3:PRINT#116,40,"00":(RND(9999),STRIP":(RND(9999)
10505 PRINT#116,40,COMP(11941):(RND(9999),CON(1199)):FOR X=1 TO 30:PRINT X:PRINT X
10510 FOR X=1 TO 500:PRINT#117,(RND(1)-RND(1)+1)/2)*100:PRINT#117,(RND(1)-RND(1)
10520 IF M(1)=M(2) THEN S(1)=1+(RND(10)*.1) ELSE S(1)=2+(RND(10)*.1)
10530 S(1)=M(1)+S(1):S=INT(S*(2*100)*.01
10540 L8=SND(15)+SND(10)*2)
10550 CLR:PRINT"THE STRIKE LASTED FOR":L8:"DAYS. THE ARBITRATOR"
10600 PRINT"HAS ORDERED A SETTLEMENT OF":S:" PERCENT."
10610 PRINT"THIS RESULTS IN A WAGE OF":
10620 S=INT(S*(100+U))*.01:PRINT USING PC2
10621 PRINT"AS A RESULT OF THE STRIKE YOUR":PRINT
10622 GOTO 10534
10623 T14,YR1=T14,YR1=51:PRINT TAB(5) TAB(4):" HAS INCREASED BY":S(1)
10625 GOTO 10534
10626 T13,YR1=T13,YR1=51:PRINT TAB(5) TAB(3):" HAS INCREASED BY":S(1)
10627 IF PC=3 THEN 10630:IF L8=7 THE PC=PC-2 ELSE GOTO 10629
10628 PRINT TAB(15)"CONSTRUCTION PROGRAM LOST ONE MILE":GOTO 10630
10629 PC=PC-1:PRINT TAB(15)"CONSTRUCTION PROGRAM LOST 1/2 MILE"
10630 PRINT:GOTO 10634:S(3,YR1)=S(3,YR1)+S:PRINT TAB(5) TAB(1):" HAS DECREASED BY":S(1)
10631 GOTO 10634:S(4,YR1)=S(4,YR1)+S:PRINT TAB(1) TAB(14):" HAS INCREASED BY":S(1)
10633 PRINT:GOTO 10640
10634 IF L8=7 THEN S1=SND(7)*.1 ELSE S1=SND(4)*.1
10635 RETURN:END
10640 INPUT"ENTER WHEN READY":J
10650 CLR:PRINT TAB(15)"PERFORMANCE FOR YEAR":YR
11018 PRINT
11020 PRINT TAB(20)"YEAR":YR:TAB(40)"YEAR":YR-1:TAB(50)"PLAN"
11030 PRINT
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Streets of the City

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11040 FOR S=2 TO 5
11050 PRINT TAB(X);TAB(20)(C,X,Y);TAB(40)(X,Y;-1);TAB(50)(L,1)
11060 NEXT S
11070 PRINT:INPUT"TYPE 'L' TO REVIEW THE STREET MAP, ELSE PRESS ENTER":
11071 CLR:IF?1 THEN 13000 ELSE 13130
13000 G2=0:G4=0:CLR:G1=0:G3=0:G7=0
13010 FOR S=1 TO 8
13020 IF S=5 THEN G2=04 ELSE G2=3
13030 IF S=5 THEN G4=.5 ELSE G4=.25
13040 IF S=4 OR S=6 THEN 13120
13050 FOR Y=18.11 TO 8(X,2) STEP G2
13060 G2=G2+G4
13070 IF G2>G1 PRINT#5,"*";
13080 IF G2<G1 PRINT#5,"-";
13090 NEXT Y
13100 NEXT S
13110 GOTO 13170
13120 FOR Y=8(X,1) TO 8(X,2) STEP G2
13130 G4=G4+G4
13140 IF G4>9(3,Y) PRINT#5,"*";
13150 IF G4<7(5,Y) PRINT#5,"-";
13160 GOTO 13090
13170 PRINT#18,"1-190";
13180 PRINT#30,"A&B";
13190 PRINT#46,"0&B";
13200 PRINT#128,"1&B";
13210 PRINT#984,"2&B";
13220 PRINT#640,"3&B";
13230 PRINT#704,"4-5&";
13240 PRINT#996,"4TH";
13250 PRINT#242,"PARKWAY";
13260 PRINT#111,"A";G1;
13270 PRINT#375,"A";G4-G1;
13280 PRINT#498,"INTERSTATES";
13290 PRINT#567,"A";7(3,Y);
13300 PRINT#631,"A";9(4-T(3,Y));
13310 PRINT#660,"A" = COMPLETE "A" = INCOMPLETE);
13320 PRINT#1004,"***** *****";INPUT Z
13330 CLR:PRINT TAB(15)"PERFORMANCE REVIEW FOR YEAR";Y;PRINT
13340 PRINT TAB(20)"YEAR";Y;TAB(40)"YEAR";Y-1;TAB(50)"PLAN"
13350 FOR S=1 TO 5
13360 IF S=3 THEN 13360
13370 PRINT G(X);TAB(N);PRINT USING PB:8(X,Y);PRINT TAB(40);
13380 PRINT USING FB:8(X,Y-1);PRINT TAB(50);PRINT USING FB(X,1);GOTO 13370
13390 PRINT G(X);TAB(30)(X,Y);TAB(40)(8(X,Y-1);TAB(50)(8(X,1)
13370 NEXT S
13380 PRINT:INPUT"PRESS ENTER":G=CLR
14000 IF W(2,Y)=9(2,1) THEN 15100
14010 IF W(3,Y)=9(3,1) THEN 15100
14020 IF W(4,Y)=9(4,1) THEN 15100
14030 IF W(5,Y)=9(5,1) THEN 15100
14040 IF W(1,Y)=9(1,1) THEN 15100
14050 IF W(2,Y)=9(2,1) THEN 15100
14060 IF W(3,Y)=9(3,1) THEN 15100
14070 IF W(4,Y)=9(4,1) THEN 15100
14080 CLR:PRINT CHR(27);PRINT"CONGRATULATIONS!"
14090 PRINT"YOU HAVE SUCCESSFULLY COMPLETED THE TRANSPORTATION"
14100 PRINT"PLAN IN";Y;" YEARS.";PRINT
14110 IF Y=7 THEN 14090
14120 PRINT"YOUR PERFORMANCE HAS BEEN SO GOOD THAT YOU HAVE BEEN"
14130 PRINT"OFFERED A HIGHER-PAYING EXECUTIVE JOB IN THE PUBLIC SECTOR!"
14140 PRINT"***** CONGRATULATIONS *****"
14150 FOR WAIT=100000:INKEY
14160 CLR
14170 PRINT"DO YOU WISH TO PLAY AGAIN (Y/N)";
14180 INPUT:IF?="N" THEN RUN ELSE PRINT"THANKS FOR PLAYING";END
```



Streets of the City

Streets of the City
Creative Computing
by Kenneth E Murray

CONGRATULATIONS! YOU HAVE BEEN NAMED TRANSPORTATION DIRECTOR OF RIVER CITY, MICHIGAN, A CENTRAL CITY WITH A DECLINING POPULATION AND WHICH HAS SUFFERED DETERIORATION OF ITS TRANSPORTATION SERVICES OVER THE LAST SEVERAL YEARS.

PRIDE TO YOUR BEING RICHES, THE CITY COMMISSION ADOPTED A TEN-YEAR TRANSPORTATION PLAN TO RESTORE SERVICES FOR BOTH STREETS AND RISES TO AN ADEQUATE LEVEL. IT WILL BE YOUR RESPONSIBILITY TO CARRY OUT THIS PLAN.

FOR THE STREET FUND, YOU WILL NEED TO CONSTRUCT SEVERAL MILES OF INTERSTATE HIGHWAYS AND RECONSTRUCT MAJOR LOCAL STREETS (CALLED PRIMARIES). YOU WILL ALSO NEED TO IMPROVE STREET CONDITIONS AND TRAFFIC SAFETY.

PRESS ENTER?

FOR THE TRANSIT AUTHORITY, YOU MUST REPLACE A DEPRECATED BUS FLEET, INCREASE RIDERSHIP, REDUCE THE AVERAGE DOWNTIME, AND IMPROVE ON-SCHEDULE PERFORMANCE (ALSO REFERRED TO AS SERVICE DELAY).

FOR ALL INDICES USED, THE HIGHER THE INDEX VALUE THE WORSE THE CONDITION INDICATED. THE BUDGET NEEDS LISTED ARE THE MINIMUMS NEEDED TO MAINTAIN THE INDEX AT ITS PRESENT LEVEL; IMPROVING THE LEVEL REQUIRES BUDGETS THAT ARE HIGHER THAN THE MINIMUM NEEDS.

PRESS ENTER?

YOUR GOALS FOR THE PLAN ARE AS FOLLOWS:

| STANDARD | PRESENT | GOAL |
|------------------------|---------|-----------|
| PRIMARY ST. RELEASE | 287 | 151 |
| INTERSTATE RELEASE | 0 | 16 |
| STREET CONDITION INDEX | 20.6 | 4 |
| TRAFFIC SAFETY INDEX | 8.9 | 3 |
| RIDERSHIP | 666,402 | 2,665,610 |
| FLEET AGE | 28.7 | 4 |
| DOWNTIME | 11.4 | 4 |
| SERVICE DELAY | 22.7 | 5 |

GOOD LUCK!

PRESS ENTER ?

7

YOUR TRANSIT AUTHORITY SERVICE OPTIONS ARE:

1. ROUTES
2. HOURS OF OPERATION
3. DAYS OF SERVICE
4. FARE
5. TO CONTINUE

WHAT IS YOUR CHOICE? 4

THE FARE MAY BE CHANGED IN NICKEL UNITS, WITH A MINIMUM FARE OF 8.25 AND A MAXIMUM OF 41.00

DO NOT ENTER DOLLAR SIGNS

CURRENT FARE = .35

NEW FARE = 1.50

YOUR TRANSIT AUTHORITY SERVICE OPTIONS ARE:

1. ROUTES
2. HOURS OF OPERATION
3. DAYS OF SERVICE
4. FARE
5. TO CONTINUE

WHAT IS YOUR CHOICE? 5

| | STREET FUND | TRANSIT AUTHORITY |
|------------------------------|--------------|-------------------|
| OPERATING NEEDS | \$7,217,000. | \$1,416,870. |
| NON-TAX REVENUE | \$2,643,400. | \$1,594,290. |
| PROPERTY TAX REVENUE (MILLS) | \$4,571,600. | -\$178,516. |



Streets of the City

TOTAL PROPERTY TAX NEEDED (IN MILLS) = 5.3
 WHAT PROPERTY TAX LEVY (0-10 MILLS) DO YOU PROPOSE? 7
 THE CITY COMMISSION HAS APPROVED A LEVY OF 7 MILLS.
 HOW MANY MILLS ARE FOR THE STREET FUND? 5

STREET FUND BUDGET DECISIONS FOR YEAR 1

| | |
|----------------------------|---------------------------|
| OPERATIONS: | CONSTRUCTION: |
| AVAILABLE: \$4,750,330. | AVAILABLE: \$1,000,000. |
| MAINT. NEEDED \$5,322,290. | COST PER HALF MILE UNIT: |
| SAFETY NEEDED \$1,894,740. | PRIMARY RDS. " \$125,800. |
| | INTERSTATES= \$428,000. |

YOU MAY TRANSFER UP TO 50 % FROM AN ACCOUNT

1. OPERATIONS TO CONSTRUCTION
2. CONSTRUCTION TO OPERATIONS
3. NO TRANSFER

7 1

STREET FUND BUDGET DECISIONS FOR YEAR 1

| | |
|----------------------------|---------------------------|
| OPERATIONS: | CONSTRUCTION: |
| AVAILABLE: \$4,750,330. | AVAILABLE: \$1,000,000. |
| MAINT. NEEDED \$5,322,290. | COST PER HALF MILE UNIT: |
| SAFETY NEEDED \$1,894,740. | PRIMARY RDS. " \$125,800. |
| | INTERSTATES= \$428,000. |

ENTER CONSTRUCTION BY THE NUMBER OF HALF MILE UNITS;
 ENTER MAINTENANCE AND SAFETY BY THOUSAND DOLLAR UNITS.
 DO NOT USE COMMAS OR DOLLAR SIGNS

| | | | | |
|---------|---------|-------------|--------------|--------------|
| | PRIMARY | INTERSTATES | MAINTENANCE | SAFETY |
| LAST YR | 0 | 0 | \$5,322,290. | \$1,894,740. |

THIS YR? 1

7 1

7 1000

7 1000

7

7 1000

YOUR MAINTENANCE AND SAFETY BUDGET EXCEEDS YOUR FUND? 0

7 3

ARE YOU SURE (Y/N)? Y

7 5

ARE YOU SURE (Y/N)? Y

PRESS ENTER?

TRANSIT BUDGET FOR YEAR 1

| | | |
|--------------------------------|---------------|------------|
| OPERATIONS | BUS FLEET | |
| AVAILABLE \$3,236,260. | AVAILABLE | \$0. |
| MAINT. NEEDED \$341,379. | COST PER BUS: | |
| OPERATIONS NEEDED \$1,074,790. | ACQUISITION= | \$140,000. |
| | SALE= | \$75,000. |

OPERATIONS TO THE BUS FLEET

HOW MANY BUSES DO YOU WISH TO SELL? 0

TRANSIT BUDGET FOR YEAR 1

| | | |
|--------------------------------|---------------|------------|
| OPERATIONS | BUS FLEET | |
| AVAILABLE \$3,236,260. | AVAILABLE | \$0. |
| MAINT. NEEDED \$341,379. | COST PER BUS: | |
| OPERATIONS NEEDED \$1,074,790. | ACQUISITION= | \$140,000. |
| | SALE= | \$75,000. |

ENTER BUDGETS IN THOUSAND DOLLAR UNITS. DO NOT
 USE COMMAS OR DOLLAR SIGNS

| | | | |
|-----------|-------------|--------------|-----------|
| | MAINTENANCE | OPERATIONS | NEW BUSES |
| LAST YEAR | \$233,999. | \$1,074,790. | 0 |

THIS YEAR? 100

7 1000

7 0

YOUR PRESENT RATE IS 7.21 DOLLARS PER HOUR
 THE UNION'S INITIAL OFFER IS FOR A 14 PERCENT INCREASE
 WHAT IS YOUR RESPONSE?



Survival

Survival was written by Stewart F. Roth and originally appeared in *Creative Computing*, January 1982.

It is the year 1991. You have crash landed on the moon and have only 180 minutes of oxygen and 330 units of power remaining. You are at Mare Serenitatis and observe the long, eerie shadows being cast by the distant mountains across the barren landscape. The realization sinks in that you are in big trouble.

Game Description

Survival is an "adventure" type of game. With logic, skill, persistence, and a little bit of luck, it is possible to survive. The action takes place on the surface of the moon where you must assess the situation, explore the surroundings, avoid potential hazards, and gather needed resources.

It is a race against time. Many explorations are required before the total situation is revealed, and the resources and life-threatening hazards are discovered.



Only then, can the process of determining an optimum course of action begin.

Once you succeed in surviving, there is then the challenge to plan new survival sequences to minimize the total elapsed time.

The commands to move are NORTH, SOUTH, EAST, WEST, UP, and DOWN. These commands may be spelled out or entered as a single letter—N, S, E, W, U, and D.

Other commands consist of an action verb followed by a noun. Examples of these commands are:

```
GET ILLUMINATOR  
DROP KNIFE  
INVENTORY
```

The set of commands is relatively small, hence you may have to try several alternatives to find the one that works. All commands may be abbreviated to the first three letters. To exit the program, you may enter END or QUIT. There is no provision for saving a partially completed game.

Program Design

The program is relatively small as it was originally written to fit in a computer with 8K of memory.

The program is directed by a move matrix M. There is one vector for each location P in the game. Table 1 lists the significance of each vector in the matrix M.

If the vector element (1-6) contains a value of "0," then the move requested in that direction is invalid. If the vector element contains a "99," then the game is terminated.

The TS vector contains the textual description of all of the various locations. As an example, the first three elements in the vector contain the description for location 1 in the M matrix. Looking at the line 9001, the seventh and eighth data items correspond to M(1,7) which has a value of 1, and M(1,8) which has a value of 3.

Table 2 lists the variables used in the program.

Table 3 lists each of the objects used in the program which are contained in the O vector. Normally the vector element is 0, for a given object, contains either the P location of that item, or a value of 99 indicating that the player is carrying that item.

Locations 1-18, and 38 normally require oxygen. All other locations are within the space station or the space craft. Locations 1-31, and 38 require a power unit or pack. All other locations are within the space station.

Changing the Complexity of the Game

Normally, the program permits the player to carry four items. One way the difficulty can be increased is by permitting only three items to be carried. In this case, a longer survival time results, and the following statements must be updated:

```
350 LET T2=175
360 LET P1=120
370 LET P2=75
730 IF T1 > 485 THEN 2460
740 IF T1 > 380 THEN 1840
2270 IF C > 2 THEN 1390
```

Conclusion

This program, unlike other Adventures, contains no random events. The emphasis is on determining optimum move scenarios, resulting in minimum times and resource use. Each location described corresponds to an actual moon location taken from a *National Geographic* map of the moon.

We wish you many happy hours of exploration. As a benchmark, the author's best survival time is 185 minutes, with a four-item carry limit. Here's to your survival!

Table 1.

M(P,1)= location to go to if direction is NORTH
M(P,2)= location to go to if direction is SOUTH
M(P,3)= location to go to if direction is EAST
M(P,4)= location to go to if direction is West
M(P,5)= location to go to if direction is UP
M(P,6)= location to go to if direction is DOWN
M(P,7)= pointer to first print line in TS vector
M(P,8)= pointer to last print line in TS vector

Table 2.

P - The current location.
R - The previous location (P for the previous location).
T1 - The current elapsed time.
T2 - the amount of oxygen remaining in the oxygen module.
P1 - The amount of power remaining in the power unit.
P2 - The amount of power remaining in the power pack.
V - The number of visits to the control center.
C - The number of items being carried.
F0 - Flag: oxygen in use.
F1 - Flag: Meteor shower.
F2 - Flag: Shed open.
F4 - Flag: Illuminator on.
F7 - Flag: Bomb deactivated.
F9 - Flag: Oxygen required in station.

Table 3.

O(1) - An electronic key.
O(2) - Sealant.
O(3) - An oxygen module.
O(4) - An illuminator.
O(5) - A robot.
O(6) - A deactivator.
O(7) - A nuclear bomb.
O(8) - A transporter unit.
O(9) - Dilithium crystals.
O(10) - A computer message.
O(11) - A power unit.
O(12) - A mirror.
O(13) - A coded badge.
O(14) - A power pack.

Survival

```
1 REM
2 REM MOON SURVIVAL PROGRAM
3 REM WRITTEN BY STEWART BUSH 3/11/81
4 REM
5 REM
6 REM T0(00)
7 REM M(42,0)
8 REM O(14)
9 REM C(0)
10 REM S(1)
11 REM
12 REM INITIALIZE TEXT AND MOVE MATRICES
13 REM
14 PRINT"WELCOME TO THE GAME OF SURVIVAL. WOULD
15 YOU LIKE INSTRUCTIONS?"
16 INPUT D0
17 IF D0="Y" THEN GOSUB 3450
18 FOR I=1 TO 54
19 READ O(I)
20 NEXT I
21 FOR I=1 TO 40
22 READ T(I)
23 NEXT I
24 FOR I=1 TO 42
25 FOR J=1 TO 8
26 READ M(I,J)
27 NEXT J
28 NEXT I
29 RESTORE
30 REM
31 REM PROGRAM VARIABLE DEFINITION
32 REM P = CURRENT POSITION          P0 = OXYGEN IN USE
33 REM T1 = CURRENT ELAPSED TIME    P1 = OPEN SHED
34 REM T2 = OXYGEN REMAINING        P2 = METEOR SHOWER
35 REM                                P3 = LASER DEFLECTED
36 REM                                P4 = ILLUMINATION ON
37 REM                                P5 = DEACTIVATION EXPOSED
38 REM                                P6 = BOMB DEACTIVATED
39 REM                                P7 = OXYGEN REQ'D IN STATION
40 REM
41 P=1
42 C=0
43 T1=0
44 T2=000
45 P1=000
46 P2=00
47 P3=0
48 P4=0
49 P5=0
50 P6=0
51 P7=0
52 P8=0
53 P9=0
54 REM
55 REM DISPLAY CURRENT STATUS AND LOCATION INFO
56 REM
57 PRINT"ELAPSED TIME: ",T1,"MINUTES"
58 IF O(1)=00 THEN PRINT"POWER UNIT: ",P1,"UNITS"
59 IF O(14)=00 THEN PRINT"POWER FAC: ",P2,"UNITS"
60 T1=T1+1
61 IF O(11)=00 AND P1=0 THEN P1=P1-1
62 IF O(14)=00 AND P2=0 THEN P2=P2-1
63 IF O(11)=00 AND P1=0 THEN 1000
64 IF O(14)=00 AND P2=0 THEN 1000
65 IF T1=000 THEN 3000
66 IF T1=1000 THEN 3000
67 IF T1=2000 THEN 3000
68 IF P=1 THEN T2=T2+1
69 IF T2=0 THEN T2=0
70 IF P=0 THEN 000
71 IF T2=0 THEN 000
72 IF P=0 THEN 000
73 IF P=1 THEN 000
74 IF P=10 THEN 000
75 IF P=10 THEN 1000
76 IF P=00 THEN 1000
77 IF P=0 THEN PRINT "OXYGEN REMAINING: ",T2,"MINUTES"
```



Survival

```
840 PRINT "PRESENT LOCATION STATUS: YOU ARE"
870 FOR I=0(P,7) TO N(P,8)
880 PRINT G(I);
890 NEXT I
900 PRINT "##"
910 REM
920 REM DISPLAY ANY OBJECTS PRESENT
930 REM
940 IF P=2 THEN 1020
950 FOR I = 0 TO 14
960 IF G(I)<>P THEN 990
970 GOSUB 8420
980 PRINT "THERE IS ",G(I)," HERE."
990 NEXT I
1000 GOTO 2000
1010 REM
1020 REM READ AND PROCESS KEYBOARD RESPONSE
1030 REM
1040 INPUT K$
1050 G=0
1060 IF LEN(K$)>1 GOTO 1020
1070 IF K$="N" THEN 2=1
1080 IF K$="S" THEN 2=2
1090 IF K$="E" THEN 2=3
1100 IF K$="W" THEN 2=4
1110 IF K$="D" THEN 2=5
1120 IF K$="C" THEN 2=6
1130 IF K$="Z" THEN 9999
1140 IF I=0 THEN 1170
1150 IF N(P,2)=0 THEN 1170
1160 IF N(P,3)=0 THEN 1040
1170 G=N(P,1)
1180 IF P=10 THEN 2040
1190 IF P=11 THEN 2100
1200 IF P=21 THEN 2120
1210 IF P=22 THEN 2420
1220 IF P=23 THEN 2470
1230 G=P
1240 P=0
1240 GOTO 830
1270 PRINT"YOU CAN'T GO IN THAT DIRECTION!"
1280 GOTO 1040
1290 REM
1300 REM PROCESS 2 OR MORE CHARACTER COMMANDS
1310 REM
1320 C$=K$
1331 C$=LEFT$(C$,3)
1340 IF C$="LOO" THEN 650
1350 IF C$="DES" THEN 650
1360 IF C$="GET" THEN 2190
1370 IF C$="TAA" THEN 2190
1370 IF C$="KEE" THEN 2190
1380 IF C$="GOS" THEN 2590
1390 IF C$="LEA" THEN 2590
1400 IF C$="PUT" THEN 2590
1410 IF C$="LIS" THEN 2700
1420 IF C$="OUT" THEN 9999
1430 IF C$="END" THEN 9999
1440 IF C$="TSA" THEN 1750
1450 IF C$="ODD" THEN 1840
1460 IF C$="WSE" THEN 4030
1470 IF C$="REA" THEN 4230
1480 IF C$="DEA" THEN 3970
1490 IF C$="BLA" THEN 4110
1500 IF C$="UP" THEN 1840
1510 IF C$="DOW" THEN 1840
1520 IF C$="ROB" THEN 1840
1530 IF C$="BOB" THEN 1840
1540 IF C$="EAB" THEN 1840
1550 IF C$="HEB" THEN 1840
1570 PRINT"INVALID COMMAND!"
1580 GOTO 1040
1590 PRINT" I CAN'T PROCESS YOUR REQUEST!"
1600 GOTO 1040
1610 G$=G$
1620 H$=H$
1630 GOTO 1870
1670 REM
```



```
1680 REM PROCESS ENTRY TO HANGER FROM ASP LOCK
1690 REM
1700 IF P=100 THEN 2000
1710 GOSUB 8400
1720 REM
1730 REM PROCESS TRANSPORT COMMAND
1740 REM
1750 IF P=100 THEN 1800
1760 IF G(0)=77 THEN 1520
1770 P=0(0)
1780 PRINT"SEARCHING IN PROGRESS."
1790 GOSUB 8300
1800 IF P=1010 THEN 1540
1810 P=34
1820 GOTO 1700
1830 REM
1840 REM PROCESS DIG COMMAND
1850 REM
1860 IF P=110 THEN 1590
1870 O(0)=10
1880 GOTO 940
1890 REM
1900 REM DROP ILLUMINATOR IF AT OVERLOOK
1910 REM
1920 IF G(4)=100 THEN 950
1930 O(4)=100
1940 PRINT"YOU DROPPED YOUR ILLUMINATOR! YOU?"
1950 PRINT"CANNOT RETRIEVE IT."
1960 GOTO 930
1970 REM
1980 REM PROCESS ROBOT
1990 IF G(5)=20 THEN G(5)=30
2000 IF G(5)=42 THEN G(5)=30
2010 IF G(5)=41 THEN G(5)=42
2020 IF G(5)=27 THEN G(5)=41
2030 IF G(5)=45 THEN G(5)=37
2040 IF G(5)=35 THEN 2090
2050 IF P=120 THEN 1810
2070 H(20,1)=35
2080 GOTO 1810
2090 IF G(5)=31 THEN 2010
2100 IF P=120 THEN 1810
2110 G(5)=25
2120 IF G(15)=35 THEN 1810
2130 PRINT"ROBOT FAILS TO RECOGNIZE YOU, IT
2140 PRINT"FIRES A PHASOR BEAM AT YOU"
2150 GOTO 2000
2160 REM
2170 REM PROCESS GET OR TAKE COMMAND
2180 REM
2190 GOSUB 8590
2200 IF I=0 THEN 1820
2210 IF I=0 THEN 1840
2220 PRINT" I DON'T RECOGNIZE ",MID$(G,3,1)," HERE!"
2230 GOTO 1040
2240 PRINT"WHAT ITEM?"
2250 GOTO 1040
2260 IF G(1)<>P THEN 2370
2270 IF G(2) THEN 2390
2280 IF I=0 THEN 2410
2290 IF I=0 THEN 2410
2300 IF I=1 THEN 2460
2310 IF I=4 THEN 2470
2320 C=C+1
2330 G(I)=99
2340 IF I=0 THEN H(0)=
2350 PRINT"O.K."
2360 GOTO 1040
2370 PRINT"THERE IS NO ",MID$(G,3,1)," HERE!"
2380 GOTO 1040
2390 PRINT"YOU CAN'T CARRY ANY MORE!"
2400 GOTO 1040
2410 PRINT"YOU CAN'T CARRY A ROBOT!"
2420 GOTO 1040
2430 PRINT"YOU CAN'T GET THE MESSAGE, IT'S
2440 PRINT"ON THE TERMINAL SCREEN."
2450 GOTO 1040
2460 IF G(14)=77 THEN 1520
```

Survival

```
1470 GOTO 1110-99
1480 GOTO 1110
1490 IF 0:1110-99 THEN 1110
1500 GOTO 1110-99
1510 GOTO 1110
1520 PRINT"YOU CAN'T HAVE MORE THAN ONE"
1530 PRINT"POWER SUPPLY."
1540 GOTO 1040
1550 REM
1560 REM PROCESS DROP OR LEAVE COMMAND
1570 REM
1580 CORSE 4999
1590 IF 1=2 THEN 1430
1600 IF 1=3 THEN 1440
1610 GOTO 1110
1620 IF 0:1110-99 THEN 1490
1630 GOTO 1
1640 GOTO 1
1650 IF 1=7 THEN 99-9
1660 IF 1=11 THEN 2710
1670 IF 1=14 THEN 2710
1680 GOTO 1110
1690 PRINT"YOU DON'T HAVE ",0:SERVO,0:1110,""
1700 GOTO 1040
1710 IF 9=22 THEN 2070
1720 IF 9=20 THEN 2070
1730 IF 9=1 THEN 2070
1740 GOTO 1110
1750 REM
1760 REM PROCESS INVENTORY COMMAND
1770 REM
1780 FOR I=1 TO 14
1790 IF 0:1110-99 THEN 1010
1800 CORSE 4410
1810 PRINT"YOU HAVE ",0:Q,""
1820 NEXT I
1830 GOTO 1040
1840 REM
1850 REM PROGRAM TERMINATION PROCESSING
1860 REM
1870 PRINT"YOU HAVE NO POWER OR POWER FAIL."
1880 PRINT"YOU HAVE PROXIE TO DEATH."
1890 GOTO 2040
1900 PRINT"SYSTEM REQUIRED HERE. NONE AVAILABLE."
1910 GOTO 1040
1920 PRINT"A NUCLEAR DETONATION HAS JUST OCCURED."
1930 GOTO 2040
1940 PRINT"YOU HAVE FALLEN TO YOUR DEATH."
1950 GOTO 1040
1960 PRINT"YOU HAVE BEEN ZAPPED BY THE LASER."
1970 GOTO 2040
1980 PRINT"THE MOON BASE HAS JUST BEEN DESTROYED"
1990 PRINT"BY A LARGE ASTEROID."
2000 PRINT"YOU HAVE FAILED TO SURVIVE."
2010 PRINT"DO YOU WISH TO TRY AGAIN?"
2020 INPUT Q
2030 IF Q="Y" THEN 111
2040 GOTO 9999
2050 REM
2060 REM PROCESS METEOR SHOWER
2070 REM
2080 IF M/F,1:1113 THEN 1210
2090 IF F1=1 THEN 1210
2100 PRINT"THERE IS A METEOR SHOWER. YOUR SPACE"
2110 PRINT"SUIT HAS DEVELOPED A LEAK"
2120 CORSE 4999
2130 IF 1=2 THEN 1040
2140 PRINT"YOUR SUIT IS NOW SEALED."
2150 F1=1
2160 GOTO 1210
2170 REM
2180 REM PROCESS LOCKED SHED
2190 REM
2200 IF M/F,1:1113 THEN 1210
2210 IF F1=1 THEN 1210
2220 PRINT"THE SHED IS LOCKED"
2230 CORSE 4999
2240 IF 1=2 THEN 1040
2250 REM
2260 REM PROCESS SHED AIR LOCK.
2270 F1=1
2280 GOTO 1210
2290 PRINT"YOUR ATTEMPT FAILS "
2300 GOTO 1040
2310 REM
2320 REM PROCESS DARK VENTILATOR SHAFT
2330 REM
2340 IF M/F,1:1113 THEN 1210
2350 IF F=1 THEN 1210
2360 PRINT"IT IS DANGEROUS TO PROCEED IN THE DARK!"
2370 CORSE 4999
2380 IF 1=2 THEN 1040
2390 PRINT"THE SHAFT IS NOW ILLUMINATED."
2400 F=1
2410 GOTO 1210
2420 REM
2430 REM PROCESS SHAFT WITH NO ILLUMINATION
2440 REM
2450 IF 0:4:1119 THEN 2040
2460 GOTO 1210
2470 REM
2480 REM PROCESS LASER BEAM
2490 REM
2500 IF M/F,1:1113 THEN 1210
2510 IF F2=1 THEN 1210
2520 PRINT"THERE IS A LASER BEAM HERE. PASSAGE NOT"
2530 PRINT"POSSIBLE WITH BEAM PRESENT."
2540 CORSE 4999
2550 IF 0:11 THEN 1900
2560 PRINT"THE BEAM IS NOW DEFLECTED."
2570 F2=1
2580 GOTO 1210
2590 REM
2600 REM PROCESS BLOWN SEAL IN SPACE STATION
2610 REM
2620 IF 0:1120 THEN 999
2630 IF F3=1 THEN 999
2640 F3=1
2650 PRINT"YOU HAVE JUST BLOWN THE AIR SEAL IN"
2660 PRINT"THE SPACE STATION."
2670 GOTO 999
2680 REM
2690 REM POWER REQUIRED TESTING
2700 REM
2710 IF 9=22 THEN 2070
2720 IF 9=1 THEN 2070
2730 GOTO 710
2740 REM
2750 REM EXPOSE DEACTIVATOR
2760 REM
2770 IF F3=1 THEN 760
2780 M(2,9)=M(1,9)+1
2790 M(1,9)=M(1,9)
2800 M(1,4)+2
2810 F3=1
2820 GOTO 760
2830 REM
2840 REM DETONATE BOMB
2850 REM
2860 GOTO 760
2870 REM DEACTIVATE BOMB
2880 REM
2890 IF 0:6:1199 THEN 1040
2900 IF 0:7:1199 THEN 1999
2910 F7=1
2920 PRINT"BOMB IS NOW DEACTIVATED."
2930 GOTO 1040
2940 PRINT"YOU HAVE NOTHING TO DO IT WITH!"
2950 GOTO 1040
2960 PRINT"THERE IS NOTHING TO DO IT TO?"
2970 GOTO 1040
2980 PRINT"YOU CAN'T DO IT FROM HERE!"
2990 GOTO 1040
3000 REM
3010 REM FUEL ROCKET
3020 REM
```



Survival

```
4000 IF P<10 THEN 3900
4040 IF C0<1100 THEN 3940
4080 C0=C0+50
4040 PRINT"FUEL IS NOW LOADED."
4070 GOTO 1000
4000 REM
4000 REM BLASTOFF PROCESSING
4100 REM
4110 IF P<10 THEN 3900
4120 IF C0<1000 THEN 4100
4130 IF T<1 THEN 4100
4140 PRINT"REPAIRS NOT YET COMPLETE."
4150 GOTO 1000
4160 PRINT"CONGRATULATIONS, YOU HAVE JUST BLASTED
4170 PRINT"OFF AND ARE ON YOUR WAY TO EARTH."
4180 PRINT"YOUR ESCAPE TIME: ", T,"MINUTES."
4190 GOTO 3900
4200 PRINT"YOUR SPACE CRAFT HAS NO FUEL!"
4210 GOTO 1000
4220 REM
4230 REM COMPUTER READOUT PROCESSING
4240 REM
4250 IF P<10 THEN 3900
4260 SCOR=4300
4270 IF I<10 THEN 3940
4280 IF Y<10 THEN 4320
4290 PRINT"BOOM DEACTIVATION LOCATED SOMEWHERE EAST"
4300 PRINT"OF SPACE STATION, ON MOON'S SURFACE."
4310 GOTO 4340
4320 IF Y<1 THEN 4300
4330 PRINT"LOCAL FUEL SOURCE: LITHIUM CRYSTAL."
4340 GOTO 4380
4350 PRINT"LITHIUM FOUND IN SOFT SURFACES."
4360 IF P<1 THEN PRINT"SPACECRAFT REPAIRS COMPLETED."
4370 S=Y-1
4370 GOTO 1000
4380 REM
4390 REM SUBROUTINE TO DESCRIBE ITEMS AT LOCATION
4400 REM
4410 IF I=1 THEN S0="AN ELECTRONIC SET"
4420 IF I=2 THEN S0="SEALER"
4430 IF I=3 THEN S0="AN OXYGEN MODULE"
4440 IF I=4 THEN S0="AN ILLUMINATOR"
4450 IF I=5 THEN S0="A ROBOT"
4460 IF I=6 THEN S0="A DEACTIVATOR"
4470 IF I=7 THEN S0="A NUCLEAR BOMB"
4480 IF I=8 THEN S0="A TRANSPORTER UNIT"
4490 IF I=9 THEN S0="LITHIUM CRYSTALS"
4500 IF I=10 THEN S0="A COMPUTER MESSAGE"
4510 IF I=11 THEN S0="A POWER UNIT"
4520 IF I=12 THEN S0="A MIRROR"
4530 IF I=13 THEN S0="A COINED BADGE"
4540 IF I=14 THEN S0="A POWER PACK"
4550 RETURN
4560 REM
4570 REM SUBROUTINE TO CONVERT AN ITEM TO A NUMERIC
    VALUE
4580 REM
4590 FOR J=1 TO LEN(S0)
4600 IF MID$(S0,J,1)="#" THEN 4640
4610 NEXT J
4620 I=1
4630 RETURN
4640 C0=MID$(S0,J+1,2)
4650 I=0
4660 IF C0="ELE" THEN I=1
4670 IF C0="SET" THEN I=1
4680 IF C0="OXA" THEN I=2
4690 IF C0="OXY" THEN I=3
4700 IF C0="ROB" THEN I=5
4710 IF C0="DEA" THEN I=6
4720 IF C0="NUC" THEN I=7
4730 IF C0="TRA" THEN I=8
4740 IF C0="MIR" THEN I=9
4750 IF C0="BAD" THEN I=9
4760 IF C0="DIL" THEN I=9
4770 IF C0="CRY" THEN I=9
4780 IF C0="COM" THEN I=10
4790 IF C0="LIT" THEN I=10
4800 IF C0="LUM" THEN I=10
4810 IF C0="MIR" THEN I=11
4820 IF C0="TRA" THEN I=11
4830 IF C0="POW" THEN I=11
4840 IF C0="MIR" THEN I=12
4850 IF C0="BAD" THEN I=13
4860 IF C0="PAC" THEN I=14
4870 RETURN
4880 REM
4890 REM SUBROUTINE TO PROCESS TRY COMMAND
4900 REM
4910 INPUT S1
4920 C0=C0+50
4930 IF C0="TRY" THEN 4950
4940 IF C0="USE" THEN 4950
4950 I=-1
4960 RETURN
4970 SCOR=4300
4980 IF I=1 THEN 5050
4990 IF C0<100 THEN RETURN
5000 PRINT"YOU DON'T HAVE "MID$(S0,1,1)"
5010 GOTO 4930
5020 PRINT"YOUR ATTEMPT FAILS!"
5030 GOTO 4930
5040 REM
5050 REM PRINT INSTRUCTIONS
5060 REM
5070 PRINT"YOU HAVE CRASH LANDED ON THE
5080 PRINT"EARTH'S MOON. YOU HAVE LIMITED
5090 PRINT"SUPPLIES AND TIME IN WHICH TO
5100 PRINT"SURVIVE. TO TRAVEL, YOU MAY
5110 PRINT"ENTER DIRECTIONS SUCH AS NORTH
5120 PRINT"OR S, AS WELL AS E, W AND
5130 PRINT"E, AND D UP AND DOWN. YOU
5140 PRINT"WILL ENCOUNTER VARIOUS ITEMS
5150 PRINT"AND SITUATIONS DURING YOUR
5160 PRINT"TRAVEL. TO COMMUNICATE, ENTER
5170 PRINT"COMMANDS (YES) FOLLOWED BY
5180 PRINT"OBJECT NAMES (IF APPLICABLE).
5190 PRINT"FOR EXAMPLE, GET KEY, LEAVE,
5200 PRINT"USE, AND INVENTORY.
5210 PRINT "-"
5220 PRINT"ONCE YOU HAVE SURVIVED, THE
5230 PRINT"OBJECT THEN IS TO ACHIEVE THE
5240 PRINT"OPTIMUM SURVIVAL TIME.
5250 PRINT" *** GOOD LUCK ***
5260 RETURN
5270 REM
5280 REM OBJECT LOCATIONS
5290 REM
5300 REM
5310 DATA 21,19,99,99,22,99,10
5320 DATA 23,99,99,99,10,94,27
5330 REM
5340 REM
5350 REM TEST LOCATION DESCRIPTIONS
5360 DATA"AT MARE SERENITATUS, LONG EERIE SHADOWS"
5370 DATA"FROM DISTANT MOUNTAINS AND CRATER CASTS"
5380 DATA"TRIMBELED ACROSS THE BARREN LANDSCAPE."
5390 DATA"ON A PROMINENT POINT ON THE RIM OF THE"
5400 DATA"CRATER POSIDONIUM, ONLY HALF VISIBLE."
5410 DATA"THERE IS TOTAL DARKNESS TO THE EAST."
5420 DATA"BETWEEN THE CRATERS OF DARES AND FLINX"
5430 DATA"AT A PASS IN THE MOUNTAINS OF MADRES."
5440 DATA"AT A STEEP BASE OF THE CRATER MANIUS."
5450 DATA"AT MARE ALPUMUM, THE APENNINE MTS."
5460 DATA"RISE OBVIOUSLY TO THE NORTH AND WEST."
5470 DATA"AT THE BASE OF THE AUREUS MT. SERRIS."
5480 DATA"INSIDE THE CRATER OF ARISTOTELIS, THE"
5490 DATA"CRATER FLOOR IS LITTERED WITH ROCKS."
5500 DATA"IN LACUS SERRISUM, NORTH OF POSIDONIUM"
5510 DATA"AND NORTH EAST OF MARE SERENITATUS."
5520 DATA"AT THE BASE OF THE BERG CRATER IN LACUS"
5530 DATA"MONTEI, THE SURFACE IS VERY SOFT HERE."
5540 DATA"AT THE BASE SIDE OF THE VAST MARE OF"
5550 DATA"IMMENSUM, TO THE NORTH THE LOW ANGLE OF"
5560 DATA"THE SUN CASTS EERIE SHADOWS ON THE SOFT"
5570 DATA"SURFACE AND DISTANT MOUNTAINS TO THE"
5580 DATA"EAST. TO THE WEST, THE MARE STRETCHES"
5590 DATA"OUT OF SIGHT TO THE HORIZON.
```

Survival

0023 DATA*AT THE BASE OF THE CRATER OF PLATO. A
0024 DATA*SHINY OBJECT IS SEEN TO THE WEST.
0027 DATA*STANDING BEFORE A SMALL METAL SHED. A
0028 DATA*SIGN READS, VENTILATOR SHIRT #2.
0029 DATA*SOMEWHERE EAST OF MARE SERENITATUS.
0030 DATA*THERE IS TOTAL DARKNESS.
0031 DATA*AT THE CRASH SITE OF A SPACE CRAFT.
0032 DATA*THE SHIP ENTRANCE IS BEFORE YOU.
0033 DATA*AT THE CENTER OF MARE IMBRIUM.
0034 DATA*IN THE AIR LOCK CHAMBER OF THE SHIP.
0035 DATA*IN THE AFT CARGO AND FUEL STORAGE ROOM.
0036 DATA*IN THE ENGINE ROOM OF THE SPACECRAFT.
0037 DATA*IN THE CONTROL ROOM, THE SHIP'S CONSOLE
0038 DATA*IS BEFORE YOU.
0039 DATA*INSIDE A DARK SHED. A LADDER LEADS DOWN
0040 DATA*INTO A LARGE METAL SHAFT.
0041 DATA*IS A VENTILATOR PASSAGE.
0042 DATA*AS A VENTILATOR OPENING, THROUGH THE
0043 DATA*OPENING A LIT PASSAGEWAY CAN BE SEEN.
0044 DATA*IN A LIGHTED SPACE STATION CORRIDOR.
0045 DATA*IN THE SPACE STATION INFIRMARY.
0046 DATA*IN THE RECREATION ROOM AND LIBRARY.
0047 DATA*IN THE MESS HALL, ABANDONED FOOD TRAYS
0048 DATA*ARE STILL ON THE TABLES.
0049 DATA*IN THE STORAGE ROOM AND SUPPLY AREA,
0050 DATA*IN THE SLEEPING QUARTERS.
0051 DATA*IN AN ELEVATOR AT SUBSURFACE LEVEL.
0052 DATA*IN AN ELEVATOR AT SURFACE LEVEL.
0053 DATA*IN THE STATION CONTROL CENTER.
0054 DATA*IN THE TRANSPORTER ROOM.
0055 DATA*IN THE SPACE STATION LABORATORY.
0056 DATA*IN THE HANGER AREA, THE LAUNCH AREA
0057 DATA*IS JUST SOUTH OF HERE.
0058 DATA*IN AN AIR LOCK CHAMBER BETWEEN THE
0059 DATA*CHARGING AREA AND THE HANGER.
0060 DATA*IN A SPACE SUIT CHARGING AREA,
0061 END
0062 END MOVEMENT AND TEST POINTER MATRIX
0063 END
0064 DATA 07.04,02.13,00,00,01,00
0065 DATA 09.03,14,03,00,00,04,04
0066 DATA 02.02,14,04,00,00,07,07

0064 DATA 01.05,03,00,00,00,00,00
0065 DATA 04.00,03,00,00,00,00,00
0066 DATA 00,00,00,00,00,00,10,11
0067 DATA 00,01,09,11,00,00,12,12
0068 DATA 00,07,10,00,00,00,13,14
0069 DATA 10,02,14,07,00,00,15,14
0070 DATA 00,09,14,00,00,00,17,18
0071 DATA 12,15,07,14,00,00,19,24
0072 DATA 00,11,00,13,00,00,20,20
0073 DATA 00,18,13,03,00,00,27,20
0074 DATA 27,27,27,27,00,00,29,30
0075 DATA 11,10,01,00,00,00,31,32
0076 DATA 17,16,07,16,00,00,33,33
0077 DATA 16,17,11,17,00,00,33,33
0078 DATA 15,19,00,00,00,00,34,34
0079 DATA 10,00,20,00,00,00,35,35
0080 DATA 00,00,00,17,21,00,36,36
0081 DATA 00,00,00,00,00,20,37,30
0082 DATA 00,00,13,00,00,23,39,40
0083 DATA 24,00,00,00,22,00,41,41
0084 DATA 25,23,00,00,00,00,42,40
0085 DATA 27,16,23,22,24,00,44,44
0086 DATA 21,00,20,21,00,00,44,44
0087 DATA 24,23,41,00,00,00,44,44
0088 DATA 00,27,42,35,00,00,44,44
0089 DATA 20,10,00,37,00,00,44,44
0090 DATA 00,00,00,26,00,00,45,45
0091 DATA 00,00,26,00,00,00,46,46
0092 DATA 00,00,25,00,00,00,47,48
0093 DATA 00,00,00,25,00,00,50,50
0094 DATA 00,17,00,00,00,00,49,49
0095 DATA 00,20,00,00,14,00,53,53
0096 DATA 00,00,20,00,00,00,54,54
0097 DATA 00,00,20,00,00,00,55,55
0098 DATA 23,00,37,00,00,00,56,57
0099 DATA 40,00,00,38,00,00,58,59
0100 DATA 00,17,00,25,00,00,60,60
0101 DATA 00,00,00,27,42,00,53,51
0102 DATA 00,00,00,20,00,41,52,52
0103 END

WELCOME TO THE GAME OF SURVIVAL. WOULD
YOU LIKE INSTRUCTIONS?
Y
YOU HAVE CRASH LANDED ON THE
EARTH'S MOON. YOU HAVE LIMITED
SUPPLIES AND TIME IN WHICH TO
SURVIVE. TO TRAVEL, YOU MAY
ENTER DIRECTIONES SUCH AS NORTH
OF E, AS WELL AS S, E, W AND
Y, AND U /UP AND DOWN). YOU
WILL ENCOUNTER VARIOUS ITEMS
AND SITUATIONS DURING YOUR
TRAVELS. TO COMMUNICATE, ENTER
COMMANDS (PREFIXED BY
OBJECT NAMES (IF APPLICABLE).
FOR EXAMPLE, GET KEY, LEAVE,
USE AND INVENTORY
ONCE YOU HAVE SURVIVED, THE
OBJECT THEN IS TO ACHIEVE THE
OPTIONAL SURVIVAL TIME.
*** GOOD LUCK ***
ELAPSED TIME: 0 MINUTES
POWER UNIT: 238 UNITS
OXYGEN REMAINING: 100 MINUTES
PRESENT LOCATION STATUS: YOU ARE
AT MARE SERENITATUS. LONG DARK SHADOWS
FROM DISTANT MOUNTAINS AND CRATERS CAST
THEMSELVES ACROSS THE BARREN LANDSCAPE.

+ N
ELAPSED TIME: 5 MINUTES
POWER UNIT: 225 UNITS
OXYGEN REMAINING: 175 MINUTES
PRESENT LOCATION STATUS: YOU ARE
AT THE BASE OF THE AWESOME MT. EUROCLUS.

+ W
ELAPSED TIME: 10 MINUTES
POWER UNIT: 220 UNITS
OXYGEN REMAINING: 170 MINUTES
PRESENT LOCATION STATUS: YOU ARE
INSIDE THE CRATER OF ARISTOTELES. THE
CRATER FLOOR IS LITTERED WITH ROCKS.

+ E
ELAPSED TIME: 15 MINUTES
POWER UNIT: 215 UNITS
OXYGEN REMAINING: 165 MINUTES
PRESENT LOCATION STATUS: YOU ARE
AT THE BASE OF THE DUMB CRATER IN LACUS
MORTIS. THE SURFACE IS VERY SOFT HERE.

+ DIG
THERE IS DILUTION CRYSTALS HERE.
? GET CRYSTALS
O.K.

Survival

• INVENTORY
YOU HAVE AN OXYGEN MODULE.
YOU HAVE LITHIUM CAPSULES.
YOU HAVE A POWER UNIT.

• 2
ELAPSED TIME: 10 MINUTES
POWER UNIT: 200 UNITS
OXYGEN REMAINING: 150 MINUTES
PRESENT LOCATION STATUS: YOU ARE
AT PEAK SERRANITATUS. LONG KREEK SHADOWS
FROM DISTANT MOUNTAINS AND CRATERS CAST
THEMSELVES ACROSS THE BARREN LANDSCAPE.

• 3
ELAPSED TIME: 35 MINUTES
POWER UNIT: 195 UNITS
OXYGEN REMAINING: 145 MINUTES
PRESENT LOCATION STATUS: YOU ARE
AT A PASS IN THE MOUNTAINS OF BARBUS.

• 4
ELAPSED TIME: 40 MINUTES
POWER UNIT: 190 UNITS
OXYGEN REMAINING: 140 MINUTES
PRESENT LOCATION STATUS: YOU ARE
AT A STEEP BASE OF THE CRATER MANTULUS.

• 5



Trucker



Trucker was written by Richard B. Caldwell and first appeared in the March 1981 issue of *Creative Computing*.

Trucker is a program which simulates the problems facing a long-haul truck driver. Ideally, you can make a good living hauling freight coast-to-coast without exceeding the legal load limit. If all goes well, you can obey the speed limits and stop each night for eight hours sleep and still make the time schedule. On a good trip you will be able to earn well over \$1,000. However, even the best drivers run into occasional streaks of bad luck and may barely break even.

Bad weather, road construction, or a flat tire can place you behind schedule and eat up your profits. You may try to increase your profits by skipping on sleep, driving fast, or carrying an overweight load. However, pushing too hard raises the risk of a traffic accident, and you will be fined if you are caught breaking the law.

Your Truck

You are driving an 18-wheel tractor-trailer combination that can hold 50,000 pounds of cargo (10,000 pounds more than the legal limit). You are

buying your truck through a bank loan that requires payment of \$1,935 per month, or \$85 for each working day. This amount includes reserves for taxes and insurance.

Your truck has a 200-gallon fuel tank and gets 4.5 miles per gallon of diesel fuel. Your mileage decreases when you drive faster or slower than 55 miles per hour. Your fuel gauge is accurate to within 5 gallons and your speedometer is accurate to within 3 miles per hour.

Accidents

It is extremely unlikely that you will be involved in a traffic accident in good weather if you drive at a reasonable speed and get enough rest. The danger increases dramatically if you drive at an excessive rate of speed, fail to slow down in fog or a blizzard, or continue driving after you have become fatigued. An exhausted driver speeding through a snow storm is asking for trouble.

There is always the danger of losing time due to a flat tire. This danger can be reduced by purchasing re-treads or more expensive tires before you start your trip, and by promptly replacing your spare tire after a flat.

Speeding

The speed limit is 55 miles per hour unless otherwise posted. Generally, Smokey will allow some leeway before pulling you over, but the faster you go the more likely you are to attract his attention. There are also a couple of places along the way where a radar speed trap may be in operation with strict enforcement.

Whenever you get a traffic ticket, you will lose time as you wait to pay your fine at the Justice of the Peace. If you receive more than three traffic tickets, you lose your Interstate Commerce Commission driver's license.

Truck Stops

Every three or four hours you will approach a truck stop. Each stop will take at least one hour while you get coffee, fuel and a spare tire if necessary. The price of diesel fuel and tires will vary unpredictably; diesel fuel will average about \$1.00 per gallon.

Truck stops are also the only places where you can sleep. You may choose when to sleep, but, if you attempt to sleep during the day, you will be disturbed by traffic noise.

Cargo

You can select one of three types of cargo to haul for each trip:

1. **U.S. Mail:** This contract will pay \$1,0475 per pound, or \$1,900 for a 40,000 pound load upon delivery.
2. **Freight Forwarding:** This contract pays 5.05 pound, or 2,000 for a load. However, there is a 10% penalty that is subtracted if you are more than 12 hours late in delivering your freight.
3. **Oranges:** This contract will pay 3.065 per pound of good oranges delivered to New York, which amounts to \$2,600 for a standard load. You are required to run the air-conditioning unit in your trailer in order to keep the oranges from rotting or freezing. This uses 7 gallons of diesel fuel per hour while you sleep.

Routes

You can choose one of three routes: the northern route, the middle route or the southern route. Let's look at each route in detail.

Northern Route

This route is the shortest but also the riskiest. You will leave from Los Angeles on Interstate 15 and drive through Las Vegas and Denver. You then take

Interstate 80 through Nebraska, northern Ohio and Pennsylvania. The total mileage is 2,710. You will pay a total of \$195 in tolls and have one chance in eight of avoiding weighing stations. The danger of bad weather is high, and the speed limit is vigorously enforced.

Middle Route

The middle route follows old Route 66 from Los Angeles through northern Arizona and Oklahoma into St. Louis. Then you cut over to the Pennsylvania Turnpike and follow through to New York. The total distance to New York is 2,850 miles. The toll road portions will cost you \$240 in fees. This route has fewer Smokies watching your speed and the weather conditions are much more favorable than the Northern route. However, watch the weight in your trailer since there are usually several truck scales in operation.

Southern Route

This route takes you from Los Angeles on Interstate 10 through Arizona, New Mexico, and Texas. You then follow Interstate 20 to Atlanta before heading north to Washington, D.C. The last leg of your journey follows Interstate 95 up the Atlantic coast. The mileage is 5120; much longer than the other routes. However, it is the safest route because you avoid much of the bad weather. Tolls amount to only \$95 and you will run into fewer police and fewer truck scales. If you cannot resist the temptation to take on an over-weight cargo or if you have a lead foot, this is the best route for you to take.



Trucker

```
10 REM--INDEPENDENT TRUCKER SIMULATION
20 REM--BY CREATERS COMPUTING
30 REM--5/25/84
40 DIM M(12), M(12,25), M(12,25), M(12,25), M(12,25), M(12), M(12)
50 CLR
60 PRINT"                INDEPENDENT TRUCKER SIMULATION"
70 M(11)="First";M(12)="Second";M(3)="Third";M(14)="Fourth"
80 M(10)="Monday";M(11)="Tuesday";M(12)="Wednesday"
90 M(13)="Thursday";M(14)="Friday";M(15)="Saturday";M(16)="Sunday"
100 PRINT"84, DO YOU WANT TO SEE INSTRUCTIONS?"
110 INPUT "Y/N IF LEFT(12,1)="Y" OR LEFT(12,1)="N" THEN 1000 ELSE 9000
1000 CLR:G=0:W=0:AL=0:MS=0:GOSUB 1100
1010 PRINT"128, "
1020 PRINT"You are at the Los Angeles Trucking Terminal"
1030 PRINT"Three types of cargo are available:"
1040 PRINTTAB(5,1)--CARGO (highest profit if they don't spoil)"
1050 PRINTTAB(5,2)--FRESH FORWARDING (penalty for late delivery)"
1060 PRINTTAB(5,3)--O.S. MAIL (lowest rate, but so hurry to arrive)"
1070 PRINT"The cargo is due in New York 24 hrs on Thursday."
1075 INPUT"which type of cargo do you want";CT
1080 IF CT=1 OR CT=2 INPUT"pick a NUMBER: 1, 2, OR 3";CT:GOSUB 1090
1090 INPUT"how many pounds will you carry (40000 is the legal limit)";WL
1100 IF WL>40000 PRINT"you can't make a living on half a load.";GOTO 1090
1110 PRINT:PRINTTAB(5)"They are loading your truck now,"
1120 RETURN
1140 FOR RT=0 TO 2
1150 READ M, M(12)
1160 FOR I=1 TO M
1170 READ M(12,I), M(12,I), M(12,I), M(12,I)
1180 NEXT I,RT
1190 T=0:W=100:SF=1:FS=1:SL=55:SW=50:LC=150
1200 IF WL>50000 THEN WL=50000 ELSE 1130
1210 PRINT"50,000 pounds of cargo has filled your trailer!"
1211 FOR I=1 TO W:NEXT I
1220 SW=SW-1:CLS:GOSUB 1230:PRINT"124,"
1225 PRINT"You have nearly a full tank (cost of fuel: $ 100).";PRINT
1230 INPUT"two of your tires are worn. Do you want replacements";I2
1240 IF LEFT(I2,1)="Y" OR LEFT(I2,1)="N" THEN 1250
1250 PRINT"A new tire costs $100. A RETURN costs $100.";PRINTTAB(5,1)
1260 INPUT"which type do you want";I2:PRINTTAB(5,1);I2-LEFT(I2,1)
1270 INPUT"how many";T
1280 IF T=3 IF I2="W" OR I2="S" THEN T=3:T=2:G=0:G=200
1290 IF T=0 OR T=2 THEN 1330
1300 IF T=0 THEN 1330
1310 IF I2="S" OR I2="S" THEN TC=TC-1*TC:G=0:G=200*G:GOTO 1330
1320 IF I2="W" OR I2="S" THEN TC=TC-4*TC:G=0:G=200*G:GOTO 1330
1330 PRINT"did not understand your answers.";PRINT"Let's try again!"
1340 PRINTTAB(5);GOTO 1230
1370 PRINT:PRINT"You may choose the Northern, Middle or Southern route."
1380 INPUT" which route do you choose";I2:I2-LEFT(I2,1)
1390 IF I2="W" OR I2="S" THEN RT=1:W=4:GOTO 1400
1370 IF I2="W" OR I2="S" THEN RT=2:W=2:GOTO 1400
1375 IF I2="W" OR I2="S" THEN RT=3:W=1:GOTO 1400
1380 PRINT"Please, answer: NORTH, MIDDLE, or SOUTH ?"
1385 GOTO 1400
1400 REM**
1410 SP=SP+1:CL=0
1420 IF SP=MS(1) THEN GOSUB 4000
1430 SP=SP+MS(1)*C
1440 IF SP=MS(2) THEN GOSUB 2000
1450 IF SP=SL-MS(1) THEN GOSUB 1100
1460 MS=MS+1:WL=WL+1
1470 IF SL=40 THEN SL=55
1480 T=ABS(19-SP);IF T=12 THEN T=12.5
1490 T1=SP*(4.5-0.3**T)
1500 W=SP-T1:IF W=0 GOSUB 1500
1510 W=SP+SP
1520 IF W=MS(1) THEN 1000
1530 FOR I=1 TO MS(1)
1540 CLR:GOSUB 1100
1560 PRINT"84, Approximate fuel:";INT(W-5)+MS(1);TAB(16)"expense:";SP
1570 PRINTTAB(5)"distance:";M(12,I)*"miles to go:";M(12,I)-W
1580 PRINT
1590 REM** MILEPOST
1600 IF M(12,SP)=W GOTO 1100 ELSE PRINT"Cracking on ";M(12,W);
1610 GOSUB 3000:PRINT"you are feeling ";CL
1620 GOSUB 3000:PRINT"current weather: ";CR
1630 W=MS+1:IF W=3 GOSUB 1700
```


Trucker

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1640 INPUT "How fast do you wish to go?":SP
1645 IF SP< 10 PRINT"YOU HAVE TO GO AT LEAST 10 -- ":GOTO 1640
1646 IF SP> INT(1.5*SL) THEN SP= INT(1.5*SL) ELSE 1670
1645 PRINT"you can only get the old rig to go":SP,"mph on this road."
1670 GOTO 1400
1700 REM**
1710 INPUT"reach 3000 Ahead. Do you want to stop?":S
1720 IF LEFT(S,1)~"n" OR LEFT(S,1)~"y" THEN H=INT(1.5*H) RETURN
1730 IF LEFT(S,1)~"y" AND LEFT(S,1)~"n" INPUT"yes or no":S:GOTO1720
1740 T= S*(INT(35*H/100))
1750 PRINT"Diesel fuel costs":T,"cents a gallon."
1760 INPUT " How many gallons do you want?":T1
1770 IF T1<0 PRINT"NO":PRINTUSDC(4444.44)*T1/100:GO*0*T1/100:WRWR*T1
1780 PRINT"so far, you have spent ":PRINT "g":c
1790 IF SP + 20< PRINT"The tank holds 300 gallons--"(INT(WF-200)):"gallons spilled"
1795 WF=200
1800 IF T1<0 THEN 1900
1810 T= 100*(INT(30*H/100)+T1):T1=100*(INT(70*H/100))
1820 PRINT"A new tire costs $":T1" & RETREAD costs $":T1
1830 INPUT " Do you want to buy a tire?":T2
1840 IF LEFT(T2,1)~"n" OR LEFT(T2,1)~"y" THEN 1900
1850 INPUT " Choose how or Retread?":S
1860 IF LEFT(S,1)~"n" OR LEFT(S,1)~"y" THEN SP=SP+T2-S:GOTO1900
1870 IF LEFT(S,1)~"n" OR LEFT(S,1)~"y" THEN SP=SP+T2-S:GOTO1900
1880 PRINT" I DID NOT UNDERSTAND YOUR ANSWER."GOTO1900
1900 H= H+S*H/100
1910 INPUT"do you want to get some sleep?":S
1920 IF LEFT(S,1)~"n" OR LEFT(S,1)~"y" GOTO 2100:GOTO 2000
1930 INPUT " How many hours of rest?":T
1940 IF T<1 GOTO 2000
1945 IF T>10 THEN PRINT"WORKING MENUS THAT WERE ASLEEP" ELSE 1950
1946 FOR I=0 + 1 TO 1000:PRINT:GOTO1930
1950 H= H - 24*(INT(H/24))
1960 H= H+T:FOR I=1 TO 125*(NEXT:I*FCT=1 THEN H=H+T)?
1965 IF H<0 THEN H=0:GOTO2000
1970 IF H<11 OR H>12 THEN GOTO 1980
1975 T=INT(H/2+.4)
1985 PRINT"thanks to the daytime noise, you got only":T,"hours of real sleep."
1990 H=H-T
1995 IF T<3 THEN H=0 ELSE H=H/2
2000 GOTO2100:PRINT"Time to hit the road again."
2010 PRINT"you now have "WF:"gallons of fuel."
2015 INPUT"do you want to buy more?":S
2020 IF LEFT(S,1)~"y" OR LEFT(S,1)~"n" THEN 1740
2030 IF H<10 PRINT"REMEMBER, the current speed limit is":SL,"mph."
2035 RETURN
2100 REM** DISPLAY DAY & TIME
2110 H=H+H
2120 DT=INT(H/24):OH=H - 24*DT
2130 IF DT<6 THEN DT=DT-7:GOTO2130
2140 DT="am"
2150 IF DT=12 THEN DT="noon":GOTO 2200
2160 IF DT=12 THEN DT="12:00pm"
2170 IF DT=0 THEN DT="12:00am":midnight"
2200 T=PERK(4444400):T1=PERK(4444400)
2210 GOSUB10," Days "(DT:DT,T:DT):T1="Time":DT:OH
2220 FOR S=4020,T:FOR S=4021,T1
2230 RETURN
2300 REM** SPEEDING
2310 IF (SP-SL-5)[2< 500*H/100) RETURN
2320 PRINT"warning is behind you with his lights on. FULL OVER!"
2350 H=H+1:PRINT"see the JUSTICE of the PEACE for your "(INT(H/10)):" offense"
2360 PRINT " Wait":H:"hours for your hearing"
2370 H=H+H/10:SL=WT
2380 IF H<3 THEN 2450
2390 T=H*H/10:T1= 5*(DT+H*H/10)
2400 PRINT " FINE is ":PRINTUSDC(4444)*T1
2410 PRINT " plus $":T1:"for each MPH over the limit."
2420 PRINT " pay $":PRINT INT(T1*(SP-SL)/100+50)*T1*(SP-SL)
2430 FOR I=1 TO 1000:PRINT:RETURN
2440 PRINT" You are sentenced to 10 days in jail for reckless driving."
2450 FOR I=1 TO 300:PRINT
2460 PRINT"your I.C.C. Driver's License is revoked!"
2465 GOTO2000
2500 REM** OUT OF GAS
2510 T1=TI-WF:WF=0:SP=0
2520 T=4.5 - 0.1*T1*T1:WF=WF+T
2530 PRINT"after":T:"more miles, you ran out of fuel (DANGER !!)"
```

Trucker

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1540 PRINT " It cost $ 200 to get a barrel of diesel delivered."
1545 SP=55*(1+RND(15))+RR+RR+TLCR*CC+200*(RL+HL)*T
1550 PRINTTAB(5) " You also wanted ",T,"hours by your carelessness."
1570 IF C0=1 THEN C0=C0+RND(1)
1575 PRINT " Sitting with the refer unit off is damaging the oranges."
1580 FOR I=1 TO 999:NEXT I
1590 GOTO 200
1600 REM** FLAT TIRE
1620 PRINT"You just blew a tire !!"
1630 IF T0=0 THEN T00
1640 T0=TC -2*(TS+SS=0)
1650 T=RR*(2):IF T=1 THEN T0="outside" ELSE T0="inside"
1660 PRINT" It took",T,"hours to change the ",T0," tire.",RR+RR+T*HL+SL*+1
1670 FOR I=1 TO 750:NEXT I:RETURN
1700 REM NO SPARE
1710 PRINT"Since your spare has already been used, you have to call a tow "
1715 PRINT"truck from town to deliver a new tire to you."
1720 PRINT" This service cost $ 400 and took 4 hours."
1730 RR=RR+4*(L+HL+L+SC+SC+SC)
1740 FOR I=1 TO 1000:NEXT I:RETURN
2000 REM** ROAD CONDITIONS
2010 SP=(3000 - SP)*RR*(C10M (SP+1) 0.995 1070,1010,1010)
2020 IF SP<3000 AND C0<=50 THEN 2560
2030 IF SP<4000 THEN 2660
2040 IF SP<4500 THEN 2970
2050 IF SP<5000 THEN 2970
2060 GOTO 2985
2070 IF SP<1400 AND C0<=50 THEN 2960
2080 IF SP<4000 THEN 2960
2090 IF SP<4700 THEN 2970
2100 IF SP<4100 IF RND(3)=1 THEN 2070 ELSE 2960
2105 GOTO 2985
2110 IF SP<4000 AND C0<=50 THEN 2960
2120 IF SP<5700 THEN 2965
2130 IF SP<5500 THEN 2970
2140 IF SP<4400 THEN 2980
2150 GOTO 2985
2160 C0=(C0)*"CLEAR & DRY":RETURN
2165 C0=50:C00="L-1-D-2-A-R-0 "":RETURN
2170 C0=50:C00="FOG -- Limited visibility":RETURN
2175 C0=50:C00="LIGHT SNOW":RETURN
2180 C0=50:C00="RAIN":RETURN
2185 C0=50:C00="CLEAR, but roadway is wet":RETURN
2000 REM** CONDITION OF DRIVER
2020 IF SL<19 OR RR/50<4 THEN C0=100:C00="...E.E.S.A.S.S.T.S.E.D."":RETURN
2030 IF SL<3 AND C00(10)/5<1.3 THEN C0=100:C00="RESTED & READY TO GO."":RETURN
2040 IF SL<8 AND C00(10)/5<1.5 THEN C0=100:C00="FINE":RETURN
2045 IF SL<12 AND RR/50<=3 THEN C0=400:C00=" B O R N O":RETURN
2050 IF SL<16 AND RR/50<=3 THEN C0=800:C00=" T I R E D "":RETURN
2060 C0=100:C00="FATIGUED...You're getting sleepy":RETURN
1100 REM** TELEPOST
1110 PRINT"You have just passed ",MP(10),MP(1)
1120 IS=PRINT,MP(1),SL=55
1130 ON INT(IS) GOSUB 1110,1110,1160,1430,1500,1710,1960
1140 MP=MP-L*INT INT(IS)<=0 THEN 5000 ELSE 1600
1110 PRINT"Time does changes -- Set clock ahead one hour"
1120 RR=RR+100000 2100
1130 RETURN
1140 T=100*(20-INT(IS))
1150 PRINT"STOP! PAY TOLL of ",PRINTTAB(10)"+44":T
1160 CC=CC+T
1170 RETURN
1180 IF RND(1)< IS -INT(IS) RETURN
1190 PRINT"CONSTRUCTION AHEAD !!":FOR I=1 TO 500:NEXT I
1195 PRINT"SLOW DOWN -- SPEED LIMIT 35 mph":SL=35
1199 RETURN
1210 IF RND(1)< IS -INT(IS) RETURN
1215 T=SP +RND(5) -1
1218 PRINT"You were just clocked by RADAR at",T,"mph"
1219 IF T< IS<1 GOSUB 2100 ELSE PRINT" No ticket this time."
1219 RETURN
1300 IF IS=INT(IS) IF RND(1)< 5 THEN 1120 ELSE RETURN
1310 IF RND(1)< IS -INT(IS) RETURN
1320 PRINT"WEIGHING STATION OPEN -- TRUCKS MUST STOP":FOR I=1 TO 500:NEXT I
1330 PRINT"Scale weighs truck with cargo, fuel & driver":
1340 T=15000 *WL *7*WF *C0*RR(10)
1350 PRINTTAB(10)"+44":T:PRINT" POUNDS."
1360 T=INT(T-60000)
```



Trucker

```
1570 IF T=1 PRINT " See're G.E.'s RETURN
1580 IF Z=5.00 THEN 1630
1590 T1=ABS(I4)-I:PRINT " Overweight fine is $ 500 plus";T1;"cents/pound"
1600 G0=50+100*(T1)/500
1610 PRINT"Pay fine of";PRINT 200-(T1)/500
1620 RETURN
1630 W=0
1640 PRINT"you are not allowed to enter Louisiana with that load."
1650 PRINT " Take a 200 mile detour through Arkansas with 45 mph limit."
1660 G1=45;PRINT.12)*"Arkansas County Roads"
1670 FOR I=12 TO 35:PRINT.12)*PRINT.12)+200;NEXT I
1680 W123)=W123)+200
1690 RETURN
1710 IF ABS(O1) <= -INT(I2) RETURN
1720 T=ABS(O1)
1730 PRINT"A ROCK SLIDE has blocked the Allegheny Tunnel entrance"
1740 PRINT " The Highway Department will have it cleared in";T;"hours"
1750 W=ABS(T1)+FOR I=120 TO 200:T=INT(T1):IF T=1 THEN W=WF+7*T:IF W=1 GOTO3420
1760 IF T=1 THEN T0=INT(T/2)+.5) ELSE T1=0
1770 IF T1=3 THEN SL=0 ELSE IF T1=0 SL=SL/2
1780 G0=GS+T1
1790 PRINT " While waiting, you get";T1;"hours of sleep"
1800 GOSUB 3100:RETURN
1810 PRINT " You ran out of gas while waiting";T=0;GOSUB2540
1820 RETURN
1830 IF CT=1 RETURN
1840 IF ABS(O1) <= -INT(I2) RETURN
1850 PRINT"The trailer refrigeration unit has failed endangering the cargo"
1860 PRINT " Repairs take 2 hours and cost $ 100"
1870 C0=C0-ABS(I4)+ABS=ABS+INT=SL+2:G0=G0+C0+100
1910 GOSUB2100
1920 RETURN
4000 REM**
4010 FOR I=1 TO 6
4020 G1=FOR J=1 TO 60:NEXT J
4030 PRINT#400,COS(I/32)*"C H A S E I"
4050 FOR J=1 TO 60:NEXT J,1
4060 PRINT
4070 IF G0=100 OR (C0=35 AND SF=65) PRINT"you fell asleep at the wheel";GOTO4130
4080 IF C0=50:PRINT"you drove into a snow-filled ditch";GOTO4130
4090 IF C0=10 PRINT"you rear-ended a Pick-up with no tail lights";GOTO 4130
4100 IF SF=65 PRINT"ABUS' SPEED KILLS !":END
4110 IF C0=8 PRINT"you hit a slick spot and skidded off the road";GOTO4130
4120 PRINT"A drunk driver rammed your rig";PRINT"ABUS' TRUCKS LICK !"
4130 PRINT:FOR I=170:GOTO 5000
4140 PRINT"you lose your truck & profits";PRINT
4150 PRINT:PRINT"do you want to start over";G0
4160 IF LEFT$(I22,11)="" OR LEFT$(I22,11)="" THEN G1=END
4170 SF=0;G1=GOTO 1000
5000 REM**
5010 FOR I=1 TO 5
5020 G1=FOR J=1 TO 60:NEXT J
5030 PRINT#152,"WELCOME";PRINT#200,"TO";PRINT#400,"NEW YORK"
5040 FOR J=1 TO 60:NEXT J,1
5050 FOR I=1 TO 150:NEXT I;G1
5100 GOSUB1000:PRINT#94,"**
5110 T=8-INT(I8/24):IF T=10 OR T=11 THEN 5140
5120 PRINT"the warehouse is closed for the night, Come back tomorrow."
5130 T=24-T:G0=GS+T:FOR I=1 TO 1000:NEXT I;GOSUB 2100
5140 PRINT#1-DAT$(24):T1=88-24*T
5150 PRINT"you completed the trip in";T;"days"
5160 IF T1=1 PRINT" A";T1;"hours," ELSE PRINT
5170 PRINT " Trip expenses totaled ";PRINT G0:G0
5180 IF T1=0 THEN T=T1
5190 T1=45*T+85:PRINT " Truck payments, insurance & taxes cost ";PRINT T1
5200 G0=GS+T1:PRINT
5210 G0=GT GOTO 5120,5110,5140
5220 T1=(T+4)*ABS(I1):IF T1=0 THEN C0=C0+T1
5230 IF C0=60:PRINT"your oranges have spoiled, Take them away";T1=50;GOTO5400
5240 PRINT"collect six-and-a-half cents per pound for good oranges."
5250 SF=.65*AL:PRINT " total for the load ";PRINT SF
5260 IF C1=1 THEN 5400
5270 PRINT " Part of the load is damaged. Subtract ";PRINT 3*C0;PRINT"A"
5280 XT=SF-3*C0/20:PRINT " Net Payment Is ";PRINT SF
5290 GOTO5400
5310 XT=.44*AL:PRINT"Collect five cents a pound for freight."
5320 PRINT " total for load = ";PRINT XT
5330 I=SF+XT THEN 5400
```

Trucker

```
5140 CX=3:PRINT " You're late! Subtract ten percent penalty." :GOTO5150
5150 PRINT "Postmaster pays 4.7% cents per pound on delivery." :X=X+.047*W
5160 CX=X-100*P/100
5170 PRINT:OT=OT-OC:SP=SP-OT:IF SP=0 THEN 5470
5180 PRINT "Your Net Profit this trip was " :PRINT OT
5190 IF SP=1000 PRINT " O O O D W O R R I I "
5200 IF SP=1 PRINT " Your Average Profit has been:" :PRINT SP/30
5210 IF SP=200 ON SP/40:GOTO PRINT " You'd make more money working dishes "
5220 PRINT:INPT:INPUT "Do you want to make another trip?":G
5230 IF LEFT$(G,1)=""*N" AND LEFT$(G,2)=""*n" THEN RUN ELSE CLS:END
5240 PRINT "BAD TRIP. . . You lost":PRINT ASB:G
5250 IF SP=0 GOTO 5430
5260 PRINT " You are BAREKNIFE !!!"
5270 REM -- LOSE TRUCK, END GAME
5280 PRINT:PRINT "Your rig has been repossessed."
5290 PRINT:END
5300 FOR I=1 TO LINECOUNT*2
5310 CLS
5320 PRINT$(3)"This is a simulation of the problems facing a long haul"
5330 PRINT "truck driver. Ideally, you can make a good living hauling"
5340 PRINT "weight coast-to-coast without exceeding the legal load limit."
5350 PRINT "If all goes well, you can obey the speed limits, stop for"
5360 PRINT "8 hours along each night and still meet the schedule." :PRINT
5370 PRINT$(3)"Bad weather, road construction or flat tires may throw"
5380 PRINT "increase your profits by skimping on sleep, driving fast, or"
5390 PRINT "carrying an overweight load. However, pushing too hard raises"
5400 PRINT "the risk of a traffic accident, and you will be fined if you"
5410 PRINT "are caught breaking the law." :PRINT
5420 GOTO5400:CLS
5430 PRINT$(26)"BOOK TRUCK" :PRINT
5440 PRINT$(5)"You are driving an 18-wheel tractor trailer combination"
5450 PRINT "that can hold 30,000 pounds of cargo (10,000 more than the"
5460 PRINT "legal limit). You are buying your truck through a bank loan"
5470 PRINT "that requires payment of $ 1,855 per month (including"
5480 PRINT "interest for taxes & insurance). This works out to $ 45 for"
5490 PRINT "each working day."
5500 PRINT$(5)"You have a 100 gallon fuel tank and get 4.5 miles per"
5510 PRINT "gallon of diesel oil. Your mileage decreases when you drive"
5520 PRINT "either faster or slower than 55. Your fuel gauge is accurate"
5530 PRINT "to within 3 gallons, and your speedometer is accurate to"
5540 PRINT "within 3 miles per hour." :PRINT
5550 GOTO5410:CLS
5560 PRINT$(26)"ACCIDENTS" :PRINT
5570 PRINT$(5)"It is extremely unlikely that you will be involved in"
5580 PRINT "a traffic accident in good weather if you drive at a reasonable"
5590 PRINT "speed and get enough rest. The danger increases dramatically"
5600 PRINT "if you drive at an excessive rate of speed, fail to slow down"
5610 PRINT "in fog or a blizzard, or continue driving after you become"
5620 PRINT "fatigued. An exhausted driver speeding through a cross street"
5630 PRINT "is asking for trouble."
5640 PRINT$(5)"There is always the danger of losing time because of"
5650 PRINT "a flat tire. You can reduce the danger by starting the trip"
5660 PRINT "buying some retreads or more expensive new tires, and"
5670 PRINT "promptly replacing your spare after a flat."
5680 GOTO5410:CLS
5690 PRINT$(26)"SCHEDULE" :PRINT
5700 PRINT$(5)"The speed limit is 55 unless posted otherwise. Generally,"
5710 PRINT "the police allow some leeway before pulling you over. The"
5720 PRINT "faster you go the more likely you are to attract 'smokey's"
5730 PRINT "attention. There are also a couple of places along the way"
5740 PRINT "where a RADAR speed trap may be in operation with strict"
5750 PRINT "enforcement." :PRINT
5760 PRINT$(5)"Whenever you get a ticket, you will lose time as you wait"
5770 PRINT "to pay your fine at the Justice of the Peace. Also, if you"
5780 PRINT "collect more than 3 tickets your Interstate Commerce"
5790 PRINT "Commission driver's license will be revoked."
5800 GOTO5410:CLS
5810 PRINT$(24)"TRUCK STOPS" :PRINT
5820 PRINT$(5)"Every three or four hours, you will approach a truck"
5830 PRINT "stop. Each stop will take at least 1 hour. To get coffee,"
5840 PRINT "fuel, and a spare tire if necessary. The price of diesel"
5850 PRINT "fuel and tires will vary unpredictably, but diesel will"
5860 PRINT "average about one dollar per gallon." :PRINT
5870 PRINT$(5)"Truck stops are also the only places where you can"
5880 PRINT "stop to sleep. You may choose when to sleep, but attempts"
5890 PRINT "to sleep during the day will be interrupted by the traffic"
5900 PRINT "noise."
```



Trucker

```
6610 GOSUB 8910:CLS
6620 PRINTTAB(28)"CARGO":PRINT
6630 PRINT"You can choose one of three types of cargo for each trip:"
6640 PRINT"(1)"O.S. MAIL: The contract pays 4.75 cents per pound."
6650 PRINT" or (2) $1,000 for a 40,000 lb. load, whenever you deliver."
6660 PRINTTAB(31)"FREIGHT FORWARDING: Pays five cents a pound, or"
6670 PRINT"a 1,000 for a load. However, there is a ten percent penalty"
6680 PRINT"subtracted if you are more than 12 hours late."
6690 PRINTTAB(31)"ORANGES: Require running the air-conditioning unit in"
6700 PRINT"your trailer to keep them from freezing or rotting, so you"
6710 PRINT"will burn 3 gallons of diesel per hour while you sleep."
6720 PRINT"You will be paid six-and-one-half cents per pound of good"
6730 PRINT"oranges delivered to New York. That's $ 2,400 for a standard"
6740 PRINT"load."
6750 GOSUB 8910:CLS
6760 PRINTTAB(17)"ROUTES":PRINT
6770 PRINT"You can choose one of three routes. The Northern is the"
6780 PRINT"shortest, but riskiest. The Southern is the longest and"
6790 PRINT"safest."PRINT
6800 PRINTTAB(11)"NORTHERN ROUTE"
6810 PRINT"(1)"Leave Los Angeles on Interstate 15. Drive through"
6820 PRINT"Las Vegas, & Denver. Then follow Interstate 90 through"
6830 PRINT"Michigan, Eastern Ohio & Pennsylvania. Total distance is"
6840 PRINT"3,730 miles. You will pay $ 195 in tolls, and have one"
6850 PRINT"chance in eight of avoiding weighing stations. The danger"
6860 PRINT"of bad weather is high and the speed limit is vigorously"
6870 PRINT"enforced."
6880 GOSUB 8910:CLS
6890 PRINTTAB(25)"MIDDLE ROUTE":PRINT
6900 PRINTTAB(15)"The middle route follows old route 66 through"
6910 PRINT"northern Arizona and Oklahoma into St. Louis. From there"
6920 PRINT"you cut over to the Pennsylvania Turnpike. Total distance"
6930 PRINT"to New York is 2,850 miles. The toll road portions will cost"
6940 PRINT"you an extra $ 240 in fees. This route has fewer police"
6950 PRINT"watching your speed and better weather than the Northern"
6960 PRINT"route. However, watch your weight because there are"
6970 PRINT"usually several truck scales in operation."
6980 GOSUB 8910:CLS
6990 PRINTTAB(28)"SOUTHERN ROUTE":PRINT
7000 PRINTTAB(15)"The Southern route takes you on Interstate 10 through"
7010 PRINT"ARIZONA, New Mexico & Texas. Then you follow Interstate 30"
7020 PRINT"to Atlanta before heading north to Washington D.C. The"
7030 PRINT"last leg of your journey follows Interstate 95 up the Atlantic"
7040 PRINT"seaboard. This route is the longest, at 3120 miles."
7050 PRINT"However, you avoid most of the bad weather and pay only $ 85"
7060 PRINT"in tolls. You also will run into fewer police and fewer"
7070 PRINT"truck scales. If you can't resist the temptation to take an"
7080 PRINT"an over-weight cargo or if you have a lead foot, then the"
7090 PRINT"southern route offers your best bet."
7100 GOSUB 8910:CLS
7110 PRINTTAB(16)"FINAL TIPS"
7120 PRINTTAB(15)"You've seen a long explanation and may be confused"
7130 PRINT"by now. But don't worry. The game is easy to play. After"
7140 PRINT"you have tried a few trips, you may want to review the"
7150 PRINT"explanations again to pick up hints for improving your"
7160 PRINT"profits. On a good trip you will be able to earn over $1,000."
7170 PRINT"However, even the best drivers will run into occasional"
7180 PRINT"streaks of bad luck and barely break even."
7190 PRINTTAB(15)"When you play, the computer reports current conditions"
7200 PRINT"and events, and asks you to Make Decisions. You simply"
7210 PRINT"type your answer then hit 'ENTER'. For word answers, you"
7220 PRINT"can save time by typing only the first letter of the word."
7230 GOSUB 8910
7240 GOTO 1000
7250 END
8900 END
8910 PRINTTAB(15)"PRESS ENTER TO CONTINUE":
8920 IF INPUT$(1)="" THEN GOTO 8920 ELSE RETURN
8930 END
8940 DATA 21,28750
8950 DATA 90,BARTON,1-15 in California,7.80
8960 DATA 225,HEBBLES,1-40 in California,1
8970 DATA 440,FLAUSTAFF,1-40 in Arizona,3.65
8980 DATA 420,CALLUP,1-40 in Arizona,3.3
8990 DATA 740,ALBUQUERQUE,1-40 in New Mexico,3.15
9000 DATA 930,TUCUMAN,1-40 in New Mexico,1
9010 DATA 1040,AMARILLO,1-40 in Texas,7.80
9020 DATA 1135,OKLAHOMA Border,1-40 in Texas,3.3
```

Trucker

- 9125 DATA 1305,OKLAHOMA CITY,1-80 in Oklahoma,3.65
- 9130 DATA 1530,MISSOURI border,Oklaohama Turnpike,3.40
- 9140 DATA 1815,ST. LOUIS,1-84 in Missouri,0
- 9150 DATA 1990,TEXAS ROUTE,1-70 in Illinois,5.5
- 9160 DATA 2050,INDIANAPOLIS,1-70 in Indiana,0
- 9170 DATA 2115,OHIO border,1-70 in Indiana,1
- 9180 DATA 2220,COLUMBUS,1-70 in Ohio,5.5
- 9190 DATA 2350,MECKLEBURG West Virginia,1-70 in Ohio,4.25
- 9200 DATA 2420,HEM STAMTON,1-70 in Pennsylvania,6.75
- 9210 DATA 2570,PARMERSBURG,Pennsylvania Turnpike,3.75
- 9220 DATA 2760,HEM JERSEY border,Pennsylvania Turnpike,2.95
- 9230 DATA 2840,HOLLAND TURNPI,1-70 in New Jersey,1.40
- 9240 DATA 9999,HEM TORR,New York Streets,0
- 9255 DATA 18,3710
- 9260 DATA 90,SARATON,1-15 in California,7.80
- 9270 DATA 245,LA5 PEGGE,1-15 in California,1
- 9280 DATA 345,UTAH BORDER,1-15 in Nevada,0
- 9290 DATA 590,erd of Interstate,1-15 in Utah,3.20
- 9300 DATA 555,SALINA,60-60 in Utah,4.70
- 9310 DATA 740,GRAND JUNCTION,1-70 in Utah,5.40
- 9320 DATA 1010,DENVER,1-70 in Colorado,3.75
- 9330 DATA 1190,NEBRASKA border,1-70 in Colorado,1
- 9340 DATA 1450,OMAHA,1-80 in Nebraska,5.50
- 9350 DATA 1590,DEMOINES,1-80 in Iowa,4.75
- 9360 DATA 1750,ILLINOIS border,1-80 in Iowa,5.4
- 9370 DATA 1910,CAM,1-60 in Illinois,2.50
- 9380 DATA 2090,CHIC border,Indiana Turnpike,2.45
- 9390 DATA 2215,CLEVELAND,Ohio Turnpike,1.60
- 9400 DATA 2280,PENNSYLVANIA border,1-80 in Ohio,4.10
- 9410 DATA 2615,EAST SYCAMORE,1-80 in Pennsylvania,3.23
- 9420 DATA 3475,WASHINGTON BRIDGE,1-80 in New Jersey,3.20
- 9430 DATA 9999,NEW YORK,city Streets,0
- 9450 DATA 25,3120
- 9460 DATA 75,DALE SPRINGS,1-30 in California,0
- 9470 DATA 225,BLITHE,1-10 in California,1
- 9480 DATA 375,PHOENIX,1-10 in Arizona,0
- 9490 DATA 495,TEUCON,1-10 in Arizona,7.8
- 9500 DATA 650,LOSDORNO,1-30 in Arizona,5.75
- 9510 DATA 795,ST. PAGO,1-30 in New Mexico,0
- 9520 DATA 965,PECOE,1-10 in Texas,1
- 9530 DATA 1060,GRAND,1-30 in Texas,0
- 9540 DATA 1250,ADLER,1-30 in Texas,3.80
- 9550 DATA 1425,BELLAS,1-30 in Texas,0
- 9560 DATA 1610,LOUISIANA border,1-30 in Texas,5.00
- 9570 DATA 1765,ST.ROSA,1-30 in Louisiana,0
- 9580 DATA 1965,ALABAMA border,1-30 in Mississippi,1
- 9590 DATA 2100,MOBILE,1-30 in Alabama,4.35
- 9600 DATA 2200,MOBILE border,1-30 in Alabama,0
- 9610 DATA 2375,ATLANTA,1-30 in Georgia,0
- 9620 DATA 2520,CAROLINA border,1-85 in Georgia,5.75
- 9630 DATA 2565,GREENSBORO,1-85 in North Carolina,3.80
- 9640 DATA 2680,VIRGINIA border,1-85 in North Carolina,7.80
- 9650 DATA 2775,ROCKMONT,1-85 in Virginia,0
- 9660 DATA 2880,WASHINGTON D.C.,1-95 in Virginia,0
- 9670 DATA 2920,BALTIMORE,1-95 in Maryland,2.10
- 9680 DATA 2990,NEW JERSEY border,1-95 in Delaware,2.15
- 9690 DATA 3110,HOLLAND TURNPI,New Jersey Turnpike,1.40
- 9700 DATA 9999,NEW YORK,city Streets,0

INDEPENDENT TRUCKER SIMULATION
 DO YOU WANT TO SEE INSTRUCTIONS? 8
 Day: Monday Time: 8 am

You are at the Los Angeles Trucking Terminal
 Three types of cargo are available:
 1--OILCANS (highest profit if they don't spill)
 2--FRIGHT FORWARDING (equaly for late delivery)
 3--U.S. MAIL (lowest rate, but no hurry to arrive)
 The cargo is due in New York 8:4 pm on Thursday.
 Which type of cargo do you want? 1
 How many pounds will you carry (40000 is the legal limit)? 45000

They are loading your truck now.
 Day: Monday Time: 9 am

You have nearly a full tank (cost of fuel: \$ 190).



Trucker

Two of your tires are worn.

Do you want replacements? **N**
A NEW tire costs \$100. A REAR END costs \$100.
Which type do you want? **N**
How many? **3**

You may choose the Northern, Middle or Southern route.

Which route do you choose? **N**
Cruising on I-15 in California
You are feeling **BESTED & BEARING TO GO.**

Current weather: **CLEAR & DRY**
How fast do you wish to go? **60**
Days: **Monday** Time: **10 am**
Approximate FUEL: **167** SPEED: **65**
Odometer: **60** Miles to go: **2785**

Cruising on I-15 in California

You are feeling **FINE**

Current weather: **CLEAR & DRY**

How fast do you wish to go? **60**
Days: **Monday** Time: **11 am**
Approximate FUEL: **137** SPEED: **65**
Odometer: **130** Miles to go: **2720**

You have just passed **BERTON**

Cruising on I-40 in California

You are feeling **FINE**

Current weather: **CLEAR & DRY**

How fast do you wish to go? **70**
Days: **Monday** Time: **12 noon**
Approximate FUEL: **108** SPEED: **70**
Odometer: **200** Miles to go: **2650**

Cruising on I-40 in California

You are feeling **FINE**

Current weather: **CLEAR & DRY**

TRUCK STOP AHEAD. Do you want to stop? **N**

How fast do you wish to go? **60**
Days: **Monday** Time: **1 pm**
Approximate FUEL: **84** SPEED: **60**
Odometer: **260** Miles to go: **2590**

You have just passed **NEEDLES**

Time zone changes -- Set clock ahead one hour

Days: **Monday** Time: **2 pm**

Cruising on I-40 in Arizona

You are feeling **FINE**

Current weather: **CLEAR & DRY**

How fast do you wish to go? **60**
Days: **Monday** Time: **3 pm**
Approximate FUEL: **64** SPEED: **60**
Odometer: **320** Miles to go: **2525**

Cruising on I-40 in Arizona

You are feeling **B O R E D**

Current weather: **CLEAR & DRY**

How fast do you wish to go? **50**
Days: **Monday** Time: **4 pm**
Approximate FUEL: **50** SPEED: **55**
Odometer: **380** Miles to go: **2450**

Cruising on I-40 in Arizona

You are feeling **B O R E D**

Current weather: **CLEAR & DRY**

TRUCK STOP AHEAD. Do you want to stop? **Y**

Diesel fuel costs 97 cents a gallon.
How many gallons do you want? **150**
PAY \$145.50
So far, you have spent \$ 935.5

Do you want to get some sleep? **N**
Days: **Monday** Time: **5 pm**
How fast do you wish to go? **50**
Days: **Monday** Time: **6 pm**
Approximate FUEL: **184** SPEED: **55**
Odometer: **435** Miles to go: **2415**

Cruising on I-40 in Arizona

You are feeling **B O R E D**

Current weather: **CLEAR & DRY**

How fast do you wish to go? **60**
Days: **Monday** Time: **7 pm**
Approximate FUEL: **162** SPEED: **65**
Odometer: **500** Miles to go: **2380**

You have just passed **FLAGSTAFF**

Cruising on I-40 in Arizona

You are feeling **B O R E D**

Current weather: **CLEAR & DRY**

How fast do you wish to go? **60**
Days: **Monday** Time: **8 pm**
Approximate FUEL: **139** SPEED: **65**
Odometer: **565** Miles to go: **2320**

Cruising on I-40 in Arizona

You are feeling **T I R E D !!**

Current weather: **CLEAR & DRY**

How fast do you wish to go? **60**
Days: **Monday** Time: **9 pm**
Approximate FUEL: **123** SPEED: **60**
Odometer: **625** Miles to go: **2260**

You have just passed **CALLIE**

WEIGHING STATION OPEN -- TRUCKS MUST STOP

Scale weighs truck with cargo, fuel & driver,

44,950 pounds.

Overweight fine is \$ 200 plus 3 cents/pound

Pay fine of \$47.3

Cruising on I-40 in New Mexico

You are feeling **T I R E D !!**

Current weather: **CLEAR & DRY**

TRUCK STOP AHEAD. Do you want to stop? **Y**

Diesel fuel costs 85 cents a gallon.

How many gallons do you want? **170**

PAY \$145.50

So far, you have spent \$ 1133.25

The tank holds 200 gallons-- 90 gallons spilled

Do you want to get some sleep? **Y**

How many hours of rest? **8**

Days: **Tuesday** Time: **4 am**

Time to hit the road again.

You now have 200 gallons of fuel.

Do you want to buy more? **N**

How fast do you wish to go? **60**

Days: **Tuesday** Time: **7 am**

Approximate FUEL: **178** SPEED: **65**

Odometer: **685** Miles to go: **2160**

Cruising on I-40 in New Mexico

You are feeling **BESTED & BEARING TO GO.**

Current weather: **CLEAR & DRY**

How fast do you wish to go? **60**

Days: **Tuesday** Time: **8 am**

Approximate FUEL: **149** SPEED: **65**

Odometer: **750** Miles to go: **2090**

Cruising on I-40 in New Mexico

You are feeling **BESTED & BEARING TO GO.**

Current weather: **CLEAR & DRY**

How fast do you wish to go? **60**

You can only get the old rig to go 60 mph on

this road.

Days: **Tuesday** Time: **9 am**

Approximate FUEL: **104** SPEED: **60**

Odometer: **815** Miles to go: **2015**

You have just passed **ALBUQUERQUE**

CONSTRUCTION AHEAD !!

SLOW DOWN -- SPEED LIMIT 25 mph

Cruising on I-40 in New Mexico

You are feeling **FINE**

Current weather: **CLEAR & DRY**

How fast do you wish to go? **60**

You can only get the old rig to go 50 mph on

this road.

Days: **Tuesday** Time: **10 am**

Approximate FUEL: **89** SPEED: **50**

Odometer: **887** Miles to go: **1940**

Trucker

Cruising on I-40 in New Mexico

You are feeling FINE
 Current weather: CLEAR & DRY
 TRUCK STOP AHEAD. Do you want to stop? Y
 Diesel fuel costs 98 cents a gallon.
 How many gallons do you want? 111

PAY \$108.94
 So far, you have spent \$ 1438.81
 The tank holds 300 gallons-- 4 gallons spilled!
 Do you want to get some sleep? N
 Days: Today Time: 11 am

How fast do you wish to go? 80
 You can only get the old rig to go 82 mph on
 this road.
 Day: Tuesday Time: 12 noon
 Approximate FUEL: 161 SPEED: 82
 Odometer: 969 Miles to go: 1881

You have just passed TUCUMCACA
 Time Zone changes -- set clock ahead one hour
 Day: Tuesday Time: 1 pm

Cruising on I-40 in Texas
 You are feeling FINE
 Current weather: CLEAR & DRY
 How fast do you wish to go? 80
 WAGON is behind you with his lights on.
 FULL CASK!

See the JUSTICE of the PEACE for your first offense
 Wait 1 hour for your hearing
 FINE is \$ 10 plus \$ 1 for each MPH over the limit.
 PAY \$ 10
 Day: Tuesday Time: 3 pm
 Approximate FUEL: 118 SPEED: 80
 Odometer: 1049 Miles to go: 1801

You have just passed AMERILLO
 Cruising on I-40 in Texas
 You are feeling FINE
 Current weather: CLEAR & DRY
 How fast do you wish to go? 85

Day: Tuesday Time: 4 pm
 Approximate FUEL: 91 SPEED: 85
 Odometer: 1114 Miles to go: 1736

Cruising on I-40 in Texas
 You are feeling B O O E D
 Current weather: CLEAR & DRY
 How fast do you wish to go? 85

Day: Tuesday Time: 5 pm
 Approximate FUEL: 70 SPEED: 85
 Odometer: 1179 Miles to go: 1671

You have just passed OKLAHOMA border
 HIGHWAY STATION OPEN -- TRUCKS MUST STOP
 Scale weighs truck with cargo, fuel & driver:
 84,882 POUNDS.
 Overweight fine is \$ 200 plus 5 cents/pound
 Pay fine of 469.84

Cruising on I-40 in Oklahoma
 You are feeling B O O E D
 Current weather: CLEAR, but roadway is wet
 TRUCK STOP AHEAD. Do you want to stop? Y
 Diesel fuel costs 101 cents a gallon.
 How many gallons do you want? 132

PAY \$531.36
 So far, you have spent \$ 2020.75
 Do you want to get some sleep? NNO
 Days: Tuesday Time: 6 pm
 How fast do you wish to go? 85

Day: Tuesday Time: 7 pm
 Approximate FUEL: 172 SPEED: 85
 Odometer: 1244 Miles to go: 1606

Cruising on I-90 in Oklahoma
 You are feeling B O O E D
 Current weather: CLEAR & DRY
 How fast do you wish to go? 85

Day: Tuesday Time: 8 pm
 Approximate FUEL: 145 SPEED: 85

Odometer: 1309 Miles to go: 1541

You have just passed OKLAHOMA CITY
 STOP! PAY TOLL of \$85.00
 Cruising on Oklahoma Turnpike
 You are feeling B O O E D
 Current weather: CLEAR & DRY
 How fast do you wish to go? 70
 Day: Tuesday Time: 9 pm
 Approximate FUEL: 113 SPEED: 70
 Odometer: 1379 Miles to go: 1471

Cruising on Oklahoma Turnpike
 You are feeling T I R E D !!
 Current weather: CLEAR & DRY
 How fast do you wish to go? 60
 Day: Tuesday Time: 10 pm
 Approximate FUEL: 94 SPEED: 60
 Odometer: 1439 Miles to go: 1411

Cruising on Oklahoma Turnpike
 You are feeling T I R E D !!
 Current weather: CLEAR, but roadway is wet
 TRUCK STOP AHEAD. Do you want to stop? Y
 Diesel fuel costs 115 cents a gallon.
 How many gallons do you want? 106
 PAY \$121.90

So far, you have spent \$ 2197.65
 The tank holds 300 gallons-- 1 gallon spilled!
 Do you want to get some sleep? Y
 How many hours of rest? 8
 Day: Wednesday Time: 7 am
 Time to hit the road again.

You now have 300 gallons of fuel.
 Do you want to buy more? N
 How fast do you wish to go? 65
 Day: Wednesday Time: 8 am
 Approximate FUEL: 171 SPEED: 65
 Odometer: 1504 Miles to go: 1366

Cruising on Oklahoma Turnpike
 You are feeling RESTED & READY TO GO.
 Current weather: CLEAR & DRY
 How fast do you wish to go? 65

Day: Wednesday Time: 9 am
 Approximate FUEL: 151 SPEED: 65
 Odometer: 1569 Miles to go: 1281

You have just passed MISSOURI border
 STOP! PAY TOLL of \$40.00
 Cruising on I-44 in Missouri
 You are feeling RESTED & READY TO GO.
 Current weather: CLEAR, but roadway is wet
 How fast do you wish to go? 65

Day: Wednesday Time: 10 am
 Approximate FUEL: 127 SPEED: 65
 Odometer: 1634 Miles to go: 1206

Cruising on I-44 in Missouri
 You are feeling FINE
 Current weather: CLEAR & DRY
 How fast do you wish to go? 65

Day: Wednesday Time: 11 am
 Approximate FUEL: 97 SPEED: 65
 Odometer: 1699 Miles to go: 1131

Cruising on I-44 in Missouri
 You are feeling FINE
 Current weather: CLEAR & DRY
 TRUCK STOP AHEAD. Do you want to stop? N
 How fast do you wish to go? 65

Day: Wednesday Time: 12 noon
 Approximate FUEL: 77 SPEED: 65
 Odometer: 1764 Miles to go: 1056

Cruising on I-44 in Missouri
 You are feeling FINE
 Current weather: CLEAR & DRY
 How fast do you wish to go? 65

Trucker

Days: Wednesday Time: 1 pm Odometer: 1899 Miles to go: 631
Approximate FUEL: 48 SPEED: 65
Odometer: 1829 Miles to go: 1021

You have just passed ST. LOUIS
Cruising on I-70 in Illinois
You are feeling FINE
Current weather: RAIN
How fast do you wish to go? 55

Days: Wednesday Time: 2 pm
Approximate FUEL: 32 SPEED: 55
Odometer: 1884 Miles to go: 900

Cruising on I-70 in Illinois
You are feeling B O B E D
Current weather: CLEAR & DRY
TRUCK STOP AHEAD. Do you want to stop? Y
Diesel fuel costs 1.03 cents a gallon.
How many gallons do you want? 188

PAY \$173.04
So far, you have spent \$ 2410.67
Do you want to get some sleep? N

Days: Wednesday Time: 3 pm
How fast do you wish to go? 65
Approximate FUEL: 174 SPEED: 65
Odometer: 1949 Miles to go: 901

Cruising on I-70 in Illinois
You are feeling B O B E D
Current weather: CLEAR & DRY
How fast do you wish to go? 65

Days: Wednesday Time: 5 pm
Approximate FUEL: 147 SPEED: 65
Odometer: 2014 Miles to go: 836

You have just passed TERRE HAUTE
WEIGHED STATION OPEN -- TRUCKS MUST STOP
Scale weighs truck with cargo, fuel & driver:
65,211 POUNDS.
Overweight fine is \$ 200 plus \$ cents/pound

Pay fine of \$12.66

Cruising on I-70 in Indiana
You are feeling B O B E D
Current weather: FOG -- Limited visibility
How fast do you wish to go? 55

Days: Wednesday Time: 6 pm
Approximate FUEL: 178 SPEED: 55
Odometer: 2069 Miles to go: 781

You have just passed INDIANAPOLIS
Cruising on I-70 in Indiana
You are feeling B O B E D
Current weather: CLEAR & DRY
How fast do you wish to go? 65

Days: Wednesday Time: 7 pm
Approximate FUEL: 111 SPEED: 65
Odometer: 2134 Miles to go: 716

You have just passed OHIO border
Time zone changes -- Set clock ahead one hour

Days: Wednesday Time: 8 pm
Cruising on I-70 in Ohio
You are feeling T I R E D !!
Current weather: CLEAR & DRY
TRUCK STOP AHEAD. Do you want to stop? Y
Diesel fuel costs 1.13 cents a gallon.
How many gallons do you want? 90

PAY \$169.50
So far, you have spent \$ 2628.85
Do you want to get some sleep? Y
How many hours of rest? 8

Days: Thursday Time: 5 am
Time to hit the road again.
You now have 200 gallons of fuel.
Do you want to buy more? N
How fast do you wish to go? 65

Days: Thursday Time: 6 am
Approximate FUEL: 176 SPEED: 65

Cruising on I-70 in Ohio
You are feeling BORED & HATING TO GO.
Current weather: CLEAR & DRY
How fast do you wish to go? 65

Days: Thursday Time: 7 am
Approximate FUEL: 148 SPEED: 65
Odometer: 2284 Miles to go: 586

You have just passed COLUMBUS
Cruising on I-70 in Ohio
You are feeling BORED & HATING TO GO.
Current weather: B-L-I-Z-Z-E-N-G !!
How fast do you wish to go? 55

Days: Thursday Time: 8 am
Approximate FUEL: 132 SPEED: 55
Odometer: 2319 Miles to go: 541

Cruising on I-70 in Ohio
You are feeling FINE
Current weather: CLEAR, but roadway is wet
How fast do you wish to go? 65

Days: Thursday Time: 9 am
Approximate FUEL: 111 SPEED: 65
Odometer: 2384 Miles to go: 466

You have just passed WHEELING west Virginia
You were just clocked by RADAR at 64 mph
ROCKY is behind you with his lights on.
FULL CROSS
See the JUSTICE of the PEACE for your second offense
Wait 2 hours for your hearing
Fine is \$ 30 plus \$ 5 for each MPH over the limit.

PAY \$ 80

Cruising on I-70 in Pennsylvania
You are feeling FINE
Current weather: RAIN
TRUCK STOP AHEAD. Do you want to stop? N
How fast do you wish to go? 65

Full CROSS
ROCKY is behind you with his lights on.
See the JUSTICE of the PEACE for your third offense
Wait 2 hours for your hearing
Fine is \$ 30 plus \$ 5 for each MPH over the limit.

PAY \$ 275

Days: Thursday Time: 3 pm
Approximate FUEL: 70 SPEED: 65
Odometer: 2466 Miles to go: 384

You have just passed NEW BRANTON
Cruising on Pennsylvania Turnpike
You are feeling B O B E D
Current weather: CLEAR & DRY
How fast do you wish to go? 65

Days: Thursday Time: 4 pm
Approximate FUEL: 44 SPEED: 65
Odometer: 2531 Miles to go: 319

Cruising on Pennsylvania Turnpike
You are feeling T I R E D !!
Current weather: CLEAR & DRY
How fast do you wish to go? 65

Days: Thursday Time: 5 pm
Approximate FUEL: 18 SPEED: 65
Odometer: 2596 Miles to go: 254

You have just passed HARRISBURG
Cruising on Pennsylvania Turnpike
You are feeling T I R E D !!
Current weather: CLEAR, but roadway is wet
TRUCK STOP AHEAD. Do you want to stop? Y
Diesel fuel costs 1.13 cents a gallon.
How many gallons do you want? 182

PAY \$209.66

Trucker

How far, you have spent \$ 1485.51
Do you want to get some sleep? N

Day: Thursday Time: 6 pm
How fast do you wish to go? 65
Day: Thursday Time: 7 pm
APPROXIMATE FUEL: 173 SPEED: 65
Odometer: 2881 Miles to go: 169

Trucking on Pennsylvania Turnpike
Do you feel like T I R E D !!
Current weather: CLEAR, wet roadway is wet

Do you want to go? 60
Day: Thursday Time: 8 pm
APPROXIMATE FUEL: 195 SPEED: 60
Odometer: 2721 Miles to go: 129

Trucking on Pennsylvania Turnpike
Do you feel like T I R E D !!
Current weather: CLEAR & DRY

Do you want to go? 65
Day: Thursday Time: 9 pm
APPROXIMATE FUEL: 125 SPEED: 65
Odometer: 2386 Miles to go: 64

You have just passed NEW JERSEY border
TIP! PAY TOLL of \$95.00

Trucking on I-78 in New Jersey
Do you feel like FATIGUED...You're getting sleepy
Current weather: CLEAR & DRY
Do you want to go? 64
Day: Thursday Time: 10 pm
APPROXIMATE FUEL: 105 SPEED: 64
Odometer: 2850 Miles to go: 0

You have just passed HOLLAND TUNNEL
TIP! PAY TOLL of \$40.00

Trucking on New York Streets
Do you feel like FATIGUED...You're getting sleepy
Current weather: CLEAR & DRY
TICK! STOP AHEAD. Do you want to stop? N

How fast do you wish to go? 10

WELCOME
TO
NEW YORK
WELCOME
TO
NEW YORK
WELCOME
TO
NEW YORK
WELCOME
TO
NEW YORK
WELCOME
TO
NEW YORK

Day: Thursday Time: 11 pm

You completed the trip in 3 days & 15 hours.
Trip expenses totaled \$620.51
Truck payments, Insurance & Taxes cost 4.25

Collect five cents a pound for freight.
Total for load = \$700

RED TRIP. . . You lost 1345.51
You are BANKRUPT !!!

Your rig has been repossessed.



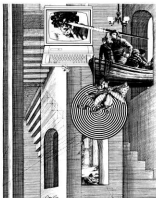
How To Write An Adventure Game

by Greg Hassett

As I gazed back at the crystal bridge that I had just crossed, I could hear water rushing nearby. My brass lantern was getting dim, and I knew that I would have to rest soon. The wings of white mist danced before my eyes as if alive, and a sudden cold chill ran up my spine. I had with me a diamond necklace which I was determined to keep. A nasty dwarf emerged from the gloom. He threw a sharp knife at me! I grabbed my axe and leaved it at him. His body vanished in a cloud of greasy black smoke. My lamp was now out; I would have to search for batteries tomorrow in the dark. So I put my necklace in my small leather sack and called it a day.

I did not lie down on the cavern floor and go to sleep. I merely turned off my home computer. I had been play a game called "Adventure." In this game, you explore a network of caves and pits in search of priceless treasure. This game is not the type of game which is mastered in an hour. It may take days, weeks, or even months to complete an Adventure.

This "original Adventure," developed at Stanford University a few years back by Willie Crowther and Don Woods, required large amounts of disk storage space. This made it very difficult to convert to run on a personal computer. However, other versions of Adventure have sprung up in the past year that are specifically designed to fit in the smaller machines.



To play Adventure, you enter commands to the computer in one- or two-word sentences in what seems to be English. A typical command might be "INSERT COIN" or "GET NECKLACE." To move about, you use commands such as "GO NORTH" or enter a new "location," and a new room description will be displayed. An example of such a description might be:

I AM IN A RADIANT CAVERN FORTY FEET HIGH. THE WALLS AND FLOORS ARE MADE OF SMOOTH MARBLE. THE POOLS OF CLEAR WATER ON THE FLOOR INDICATE AN OPENING HIGH ABOVE ME. UP ON THE CEILING GLOWS AN EERIE RED LIGHT.

AROUND ME I SEE: POOLS OF WATER. SMALL PLASTIC VIAL. . .

Later on in the game, the vial might come in handy for holding some liquid, etc., so in this situation it might be wise to "GET VIAL."

The one thing that I feel makes Adventuring so interesting is the clues that are given as you explore.

Knowing that clues exist is one thing; isolating them and figuring out what they mean is quite another. In Adventure, clues exist everywhere. They are in the room descriptions, the object descriptions. Let's say you enter a room where there are many stalactites, but no stalagmites on the floor. This in itself is a clue. If you think about it, stalagmites could be worn off if creatures lived there and walked through the cavern.

But skeletons would not be destroyed because most creatures cannot reach them.

Then there are the type of clues which have to be decoded. As an example, take the clue "MAGIC BREAK WORD BOTTLE BIMBO." This clue makes no sense at first glance. But then you notice that if you read alternate words of the clue, it deciphers into "MAGIC WORD BIMBO" and "BREAK BOTTLE."

Magic words are very popular in Adventure. A common use for these words is movement. They might be the only way to get to a completely different area of the Adventure. For example, in one Adventure the magic word "BIMBO" will magically take you from being lost in a maze of caves to a small jungle on the other side of an island. And there is no other way to get there.

In this way, Adventure is like a good mystery novel, with you being the ace detective. On the other hand, Adventure can be nerve-wracking, frustrating, and the source of serious insomnia! Adventure is a sort of puzzle . . . you have to fit all the pieces together to make it work.

I was first introduced to Adventure a few years back on a Digital Equipment Corporation PDP-11/70. I took an immediate liking to the game, but I didn't own a computer. When I purchased my Radio Shack TRS-80, I immediately set out to write an Adventure. The result was my first original Adventure, *Journey to the Center of the Earth*. When I found out I could sell this, I wrote six other Adventures: *The House of Seven Gables*, *Entry into King Far's Tomb*, *Sorcerer's Castle*, *Voyage to Atlantis*, *Enchanted Island*, and *Enchanted Island-Plus* (a machine-language version with additional features).

If there's one thing that's more habit-forming than playing Adventures, it's writing them.

Writing Adventures

What follows is an attempt to outline the basic structure of the way an Adventure can be written in Basic.

The first step in writing a Basic Adventure is coming up with the plot. This means answering the questions:

"Where will the Adventure take place?"

"What will be the main purpose of the Adventure?"

"In what kind of world is this supposedly happening?"

"What types of obstacles will the player have to overcome?"

"How is the player going to get by these obstacles?"

Once these five questions are answered in your

mind, you begin to draw the map of the Adventure. The general form of the map is shown in Figure 1. Once you have about 40 rooms (more if you are in machine language), you are ready to begin keying in the DATA. The way I do this is in the form:

```
line# DATA "room description",R,S,W,E,D
```

where line# is the Basic statement number, "room description" is the description of the room, R is the room north of it, S is the room east of it, W is the room south of it, etc. If R,S,W,E or D are set to zero, then there is no way to go from that room in the corresponding direction.

The objects are set up somewhat differently. They are in the form:

```
line# DATA "object", (room),I,value
```

where line# is the Basic statement number, "object" is the description of the object, (room) is the room where the object resides at the start of the Adventure, and (value) [if the Adventure has treasures and points] is the number of points that the object is worth. If (room) is set to zero, then the object is currently nowhere. For instance, if a trap door is only revealed after the command "MOVE RUG" is executed, the starting room for the "TRAP DOOR" is zero. Later on, after the rug is moved, the trap door's room gets set to some number other than zero.

During the initial setup of the Adventure, the program READS all of this DATA into arrays P(x), P(x,y), OBJ(x), and OB(x,y). P(x) holds the room description of room x. P(x,y) holds the room adjacent to room x in direction y. Direction 1 = North, direction 2 = East, direction 3 = South, direction 4 = West, direction 5 = Up, and direction 6 = Down. Also, after all of the room and object DATA has been read, the program proceeds to READ the vocabulary tables into arrays NOS(x) and VBS(x). The vocabulary is stored in this manner:

```
line# DATA noun1,noun2,noun3,
noun4, . . . noun x
line#2 DATA verb1, verb2, verb3,
verb4, . . . verbs
```

where line# and line#2 are Basic statement numbers, noun1-nounx are the vocabulary entries to be read into NOS(x) [nouns], and verb1-verbs are the vocabulary entries to be read into VBS(x) [verbs].

When the player enters a new room, the short routine in Listing 1 is executed. This will print the room description, its contents, and all possible directions leading out.

Parsing

Now that the Data Structure has been discussed, it becomes necessary to explain the parsing routine. This is the routine which will take the player's input, divide it into a verb/noun combination, compare it

with the vocabulary tables, and return with two numbers, stored in the variables VB and NO, each representing the offset in the vocabulary array. For instance, let's assume that "EAT" is verb number 28 [VB(28)="EAT"] and "CHAIR" is noun number 12 [NO 1(12)="CHAIR"]. If the player inputs "EAT CHAIR" as his command, the parsing routine would get called, and upon return, NO would equal 12 and VB would equal 28. The main part of the program would then deal with these two numbers. Depending on the number stored in VB upon return from the parsing routine, the main part of the program would then jump to a verb routine.

Verb Routines

Each verb has its own special "verb routine" which is called by a large ON GOTO statement executed after the parsing routine. For each verb, there are usually only a few nouns which would make sense. For instance, for the "EAT" routine, "CHAIR" would have no meaning. In all probability, only the



noun "FOOD" would make any sense with "EAT." If any other noun was entered, the message "DON'T BE RIDICULOUS" would be output, and control would return to the input/parsing routine. If the noun was "FOOD," then the room# for the food would be set to zero [the food is nonexistent once it has been eaten] and the message "MMM, GOOD." would be output. Control would then be transferred back to the input/parsing routine.

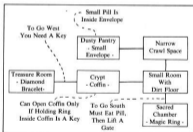


Figure 1: A typical portion of an Adventure map. Note that to get into the treasure room for the diamond bracelet, you must get the magic ring. To get the magic ring, you must eat the pill, then lift a gate. To eat the pill, you must open the envelope found in the dusty pantry.

```

1000 'BASED ROUTINE TO DISPLAY ROOM & ITS CONTENTS
1010 '
1020 'UPON ENTRY:
1030 '  CP=THE CURRENT PLACE IN THE ADVENTURE
1040 '  LD=THE NUMBER NUMBER OF OBJECTS IN THE ADVENTURE
1050 '  DR1(1)="DOOR" + DR2(1)="POTION" + DR3(1)="KEY"
1060 '  DR4(1)="MAGIC" + DR5(1)="PILL" + DR6(1)="GEM"
1070 '
1080 '
1090 'CLS "CLEAR SCREEN"
1100 'PRINT "ROOM" "FROM THE ROOM DESCRIPTION"
1110 'FOR I=1 TO LD "THIS ROUTINE WILL PRINT ALL OBJECTS IN ROOM"
1120 'IF DR(I)="" THEN PRINT DR(I) "IN ROOM" ELSE PRINT IT
1130 'NEXT I "GO ON TO THE NEXT OBJECT"
1140 'FOR I=1 TO 6 "THIS ROUTINE WILL PRINT ALL POSSIBLE DIRECTIONS"
1150 'IF P(I)="" THEN PRINT DR(I) "NOT ZERO" YES: PRINT DR(I)
1160 'NEXT I "GO ON TO NEXT DIRECTION"
1170 'PRINT STR$(RALL) " " "PRINT BAR ACROSS SCREEN"
1180 'RETURN "RETURN"

```

Listing 1—Basic listing of how the "display room" routine works. Note that all arrays must be set up as described in the text. The DR(I), O array holds the room # of object i. Note line 1120, where this value is compared with the current room number. Each object is "listed" in this fashion.

Adventures in Videoland

by David Lubar

Frame One: Editorial meetings, luck runs out, and a sweep through the August stables.

With the right misuse of eye contact, it's possible to survive a meeting intact and leave without any awe-some assignments. The meeting in question was almost over when the words, "I've been saving the best assignment for last," put a choke hold on my spirit of survival. No doubt, the phrase was aimed in my direction. Realizing that the meaning of "best" varies considerably, depending on who is doing the besting, I tore my gaze from the toy robots on the bookshelf and waited to see what the boss had in mind. Since previous assignments had ran the range from covering conferences to reviewing printers, there was no way to predict what might come. The suspense was short-lived.

"I want you to write a videodisc adventure," the boss said in the casual manner usually associated with phrases such as "please pass the butter."

"Need it by tomorrow?" I asked.

"For January." End of topic.

Could be fun, I thought, though I had never written an adventure or toyed with the fringes of video technology. This project would require three-part harmony between an Apple computer, a Pioneer Laserdisc player, and an Aurora Systems Interface. A vague suspicion that I was in over my head prompted a stroll down to the software department. After trying all available personnel, it was obvious that no one there could be talked into whitewashing the fence. Looked like the job was mine. Since the November issue was still under construction, I put the video project on temporary hold, hoping the subconscious would start the work.



Frame Two: Discarded disc, death of procrastination, and the birth of a framework.

November doesn't last forever. The harbinger of flying time came in the form of a memo. While I had been blithely trying to forget the project, the boss had been busy. He had taken side one of the movie *Roxlincrosser* and compiled two pages of notes listing the frame numbers for every scene. At this point, it dawned on me that he really wanted the program. I got down to work, keeping an eye open for an easy way out.

The first problem was figuring a way to write the program in Basic while avoiding the long delays associated with that language. Taking a shot at modular programming, I started by writing units that would handle essential tasks, such as gathering and parsing input, in an efficient manner. Since actual work with the disc player and interface would require a trip to the boss's house, I wanted to finish as much of the programming as possible before taking the act up to the Fortress of Solitude. This situation, coupled with the eternal search for the easy way out, gave birth to the adventure framework, described at the end of this chapter. Since the idea is fairly simple, and has most likely been developed more than once in the past, I make no claims of great originality here.

The framework handles all the procedures that are common to most adventures. It is, in essence, a gaffer, keeping track of a player's moves and the location of objects, and handling common commands such as "GET" and "DROP." By plugging in a couple buckets full of variables, any adventurous realm could be defined. The task of creating a specific adventure now seemed less monstrous (and next year, when they

invent the neutrino disc, I'll be able to write a neutrino adventure in record time).

Frame Three: *Onward to Olympus, empathy for hermits, and getting down to the hard stuff.*

I hit the mansion on the hill early one Monday morning, ready to wrestle with technology. The boss flipped a handful of switches, powering up computer, disc player, television, and stereo, while dimming lights throughout the neighborhood. After showing me how to use the interface and disc player, the boss left for the office, and I was on my own. Being alone in someone else's house is a rather strange experience, which I will not dwell on here. It should suffice to say that I trod gently so as not to risk breaking the carpet.

The first and easiest task was watching the movie. This not only helped pass the time, but gave me a glimpse of scenes that could be used in the adventure. *Rollercoaster*, for those of you who missed the movie, concerns an extortionist who plants bombs on rollercoaster tracks, merry-go-rounds, and other fun places. The movie occupies five sides of three discs. The side used for the adventure contains good scenes of carnival rides and explosions, making it highly suitable for an action adventure.

Having checked out the scenery, I started getting acquainted with the interface. The software included a short machine-language driver that could be called from Basic. Instructions went from computer to interface via the `USR` command. As the video-disc obeyed my commands, I felt like Archimedes lunging from the tub. This was `POWER`. I was the demigod of the disc, making it fulfill my every whim. It all seemed too easy. I could search for frames, play sequences, switch from computer to video display, do almost anything except make it roll over and beg.

As is the way in life, there was rain on this parade. Since the precipitation occurred later that day, I won't go into it now. With spirits still undampened, I started mapping the adventure, trying to create a scenario that could best exploit the available video. Thanks to the framework, the rooms and objects were plugged in fairly quickly. While the game wouldn't have the magnitude of Crowther and Wood's colossal cave, it would have enough locations to allow the player to get lost once or twice before catching on.

Frame Four: *The problem with adventures, an emergency guide to dairy substitutes, and the coming of the rain.*

The problem with the average adventure is that it is linear, frustrating, and ultimately boring. The first one is fun, the second entertaining, but after that the novelty wears thin. I realized I could either put a lot of hard work behind my feelings on the subject and pro-

duce a different sort of adventure, or rely on the novelty of the video to save the day. Following the sage advice of Occam's Razor and other convenient laws of laziness, I took the easy way out and stuck with the standard adventure format.

This sort of work definitely called for vast quantities of coffee, which led to the following discovery. If you are ever out of milk and sugar, but have peppermint stick ice cream in the freezer, try some in the coffee. It's not bad.

Having mapped the adventure, I was ready to add some video. As a start, I decided to display a still frame or sequence for each location. I wrote a short parser that would take strings of command codes and send them to the interface. The routine can be found starting at line 40000 in the main program. (If the code at 40000 is replaced with a `RETURN`, the game can be played without a videodisc, though lack of visuals makes it as exciting as watching salt dissolve.)

Once the visuals were defined, I tried a test run. After giving instructions, the game displayed a scene of the carnival midway. So far, so good. I went east. The disc player whirred. The wrong picture came up. A few tests produced the following realization: the computer is a lot faster than the disc player. If you send commands to search for frame 12345, you might get frame 135. To compensate for this, I added delays to the video parser. Now that the disk had time to digest the whole command, another problem appeared. Commands are not buffered by the interface; they are executed immediately. Sinking into the mind of the disc player, the process goes something like this: *Hey, I gotta search for frame 20123. O.K., I'm on my way. Half-way there. Getting closer. Almost there. Hey, a PLAY command. Here goes.* Thus Mr. Disc doesn't care if the search is finished. The `PLAY` command takes priority, giving whatever scene was under the beam at the moment. Enter more delay loops. End result: no matter how quickly the main code executes, there are inevitable delays associated with calling frames from the videodisc.

Frame Five: *Meat on the bones, shooting ducks, and an end to modularity.*

With the rooms mapped out and the video stuffed in, the next task was to add all those conditional actions that turn an adventure from a Sunday drive into a real game. In the real world, most problems have more than one solution. In an ideal adventure, any intelligent input should be greeted with an intelligent response. Any attempt to introduce such reality into a program would probably lead to either insanity or an `OUT OF MEMORY` error. Keeping this in mind, I first added routines to check for any commands that were required for the player to win. Any such input

This information, stored in an array called RS, serves not only to determine where a person would end up, but also for printing visible exits.

There are two other string arrays associated with rooms. The RMS array contains a brief description of each room. RD\$ contains a complete description. By separating them, it is possible to print a full description the first time a person enters a room, and a short description if he returns. (I ended up printing the full description each time since most weren't that long.)

Objects are also held in an array, OB\$, and another array, OB, contains the location of each object. OB holds either a room number, a zero if the person has the object, or a negative number if the object is out of play. This is the same sort of technique used in most Basic adventures.

One further concept was the use of variables for what I consider "furniture." This would cover objects that can't be taken but can be examined. Furniture is contained in the array FR\$, its description is in FD\$, and FL contains its location. If the value of FL is zero, that furniture can occur in any location. For example, if all rooms have walls, FR\$ would be WALL, FD\$ might be "IT IS MADE OF STONE AND CONTAINS NO CRACKS OR MARKINGS" and FL would be 0. Since the routines for LOOK and TAKE check through both objects and furniture, these two sets of arrays must have the same value, even if the higher numbers of one set aren't used.

The rest is reasonably straightforward. Once rooms and objects have been taken care of, routines need only be added to handle special situations. Note that the LOOK routine checks to see whether an object is either in the player's possession or in the same room as he. This avoids the frustration encountered when a player wants to examine something and is told he isn't carrying it. The general framework, with dummy room and object definitions, is given in Listing 2 for those who might want to construct their own adventures.

The Roller Coaster Game Explained

by David H. Ahl

"Over my dead body you will!" This was the response I got from David Lubar when I suggested running a map of the *Rollercoaster* game with the information as to what is found in each spot.

His reasoning was that the game could be played by someone whether they had a videodisc player or not. The only difference is that a person with a videodisc player and interface would be able to see the motion sequences where other players would merely have them described by the computer program.

My reasoning was that this is the first

computer/videodisc game ever published and that if it is going to be part of the entertainment wave of the future, we ought to share as much information about it as possible.

My reasoning prevailed and, thus, you are reading this article. Mr. Lubar was last heard saying, "Mutter, mutter, you're the publisher."

Flash Back

Ever since I saw an experimental videodisc player from Phillips/MCA in 1975 and published three articles about video discs in March of 1976, I have been enthusiastic about the medium. More recently, I have gotten very excited about the possibilities for computer programs which take advantage of the videodisc. Many educators and people involved in industrial training are working in similar directions. However, my thoughts were more in the area of home entertainment.

In particular, I imagined an adventure-type game based on the movie *Jaws*. I haven't quite worked out the entire scenario, however, I envision a scene where a shark is about to attack and is swimming toward you with his jaws wide open when the screen goes blank and you are asked for a decision. Make the right decision, and the shark would back off, probably in reverse slow motion and you would see it recede into the ocean. Make the wrong decision and, of course, you get eaten and lose the game. Or, you might invoke magic which would transform you to an entirely different time and place. If you did this, you might or might not lose some of the objects you have gained and you might be posed with an entirely different yet of problems based on your new location.

I envisioned using portions of the soundtrack with only the computer output visible on the screen. I also saw opportunities for the player to put in his own search coordinates (a frame number) not knowing, of course, what was there beforehand. Based on what he finds in a particular location, he must continue the game from that point. Thus, I envisioned a very open-ended type of game as opposed to the completely structured adventures and other games that exist today.

Can it all be done? I think so. We are, of course, starting in a much more structured way. However, I believe that this game will give you some idea of what the capabilities are of marrying the computer with the videodisc.

How the Game Works

After showing the appropriate title graphics, the player is told that a madman has planted a bomb on a rollercoaster. At this point a 10-second scene of the

caused the program to jump to the appropriate subroutine. Had all this been planned out beforehand, these subroutines would be neatly organized into meaningful groups. Since I was creating as I went along, the structure of the program suffered somewhat.

To add a bit of spice to the game, I tossed in some more video scenes to go along with special actions. If the player tries his hand at the shooting gallery, he sees metal ducks being flattened. If he tampers with a certain box, he is rewarded with a view of the rollercoaster being blown off the tracks.

By the end of the second day, the game was approaching finished form. All correct moves were recognized, and some incorrect moves produced special responses. So much for the easy part.

Frame Six: *Error checks, custom changes, and the true meaning of déjà vu.*

While the programmer in the role of game creator must try to anticipate various inputs, the programmer in the role of debugger has to create all possible situations. This can be a rather tedious process. Seeing the same scenes over and over is rather akin to drowning. Eventually, self-preservation overcame perfectionism, and I decided that all the bugs were eliminated. Though this is never true, the thought can be comforting. Leaving the message "Play me" on the diskette sleeve, I packed it in for the day.

I was eager to learn the boss's reaction to the program. "Not bad," he told me the next day, "though I do have a few changes to suggest."

I looked at the three pages of notes, feeling some empathy for the ancient mariner, Sisyphus, and other bearers of long sentences. A close inspection revealed that most of the changes would not be difficult. "I'll take a shot at it," I told him, trying not to give signs of relief.

Back at the Fortress, I plugged in the changes and started another round of error checks. By the end of the afternoon, I could close my eyes and see rollercoasters. But the program was finished. In an odd way, the project had almost been fun.

Frame Seven: *Conclusions, the future of video, and the meaning of it all.*

Naturally, there is a post natal pleasure associated with the completion of any programming task. After the glow dims, some questions remain. Was the project worth doing? Did it accomplish the desired functions? The main goal was to try an experiment with a fairly new technology. Here I feel partial failure. The new medium was used in an old way. Beyond the video scenes, the program is just another adventure. It was as if I had been given Vulcan's forge and

used it to produce a souped-up Ford Pinto. Despite the racing stripes and whitewalls, it's still a compact car. But the exercise has convinced me of the potential power of the video-computer connection. The fusion of these two devices will produce some spectacular results. Rather than add to existing concepts, people will create applications that open new areas, merging computers and video rather than just tacking picture to program. The rollercoaster ride has just begun.

An Adventure Framework

There are two key parts to the framework; the input routine and the partial parser. Rather than use an INPUT statement, each character is obtained with GET. This has several advantages. First, each character can be checked on entry. Second, commas won't cause an EXTRA IGNORED error message. Finally, there is plenty of time between each character to process the preceding one. With INPUT, the program receives the whole phrase at once and any processing has to be done after the user has hit return. To separate a two-word phrase, the program would have to search through the input string for a space, adding to the delay time. On the other hand the GET routine can immediately identify a space and define anything prior to it as the first word of input. The rest of the routine just traps illegal characters and checks for controls such as the back arrow or return. For back arrows, the routine erases characters as the cursor crosses them.

The input routine accepts one or two words, but no more. In its present form, it accepts only letters. It could be easily modified to recognize other characters if required. Upon returning from the input routine, there is a horrendous ON A GOSUB command with twenty-six parameters for the variable A. This causes the program to branch to different lines depending on the first letter of the command. While such a solution might be considered inelegant, it cuts down the delay considerably. Once the branch has been made, the program has just a few possible keywords for which to check.

Next, I took the basic concepts encountered in an adventure (moving, picking up, and dropping objects, examining objects, and looking at a location), and designed the framework in such a way that objects and rooms could be changed with little effort. For movement, I limited the program to four directions; adding up and down would be easy if required later. The rooms were given two identifiers, a number from 1 to 26 and the corresponding letter of the alphabet. For each room, there is a string containing the rooms that can be reached by going north, east, south, and west. Disallowed directions are marked by a null character.

bomb being planted is shown. A message flashes back which states that you, the player, are being sent to stop the saboteur. At this point a 10-second sequence of a plane landing is shown followed by some additional introductory messages.

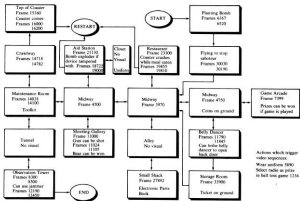
After this, you find yourself in a central area of the midway. (See diagram.) Some of the video sequences (both still frames and motion sequences) are activated by going to a new place in the game-playing area. Other video sequences are activated by picking up an object or giving some other command. For example, the command "Wear Uniform" triggers a still frame of the groundskeeper in a uniform.

Still other video sequences are triggered as part of a sequence of events over which a player has no control. For example, if you crawl too far out on the coaster track, you are shown a scene of the empty track followed by a computer message that says "The sound of the coaster is getting very loud." This is immediately followed by a scene of the coaster passing by after knocking you unconscious. This triggers one of the alternate end-of-game routines and you are given the opportunity to play again.

Possible Extensions

The mind boggles with the possible extensions to a videodisc/computer game. For example, the way the game is written now, the bomb explodes if the player tampers with the electronic device in the Aid Station. A possible alternative: by turning the knob on the device you discover that it is an alien time warp machine and that it reverses time for ten seconds. You might see the rollercoaster going backwards or people walking backwards on the midway for the next ten seconds. Used in the adventure, you might have to find a detonator, take it to the Aid Station and explode the bomb, make time go backwards and un-explode the bomb in order to find out on what frequency the detonator works so that you are able to construct a jammer.

Of course, there are many, many possible extensions. One side of the videodisc has over 50,000 individual frames on it and the disc of *Rollercoaster* that we used for this adventure, has over 120 separate motion sequences on the first side. Thus, it should be apparent that we are just scratching the surface with the game as it currently exists.



Location Map of Rollercoaster Videodisc/Computer Game

Adventures in Videoland

```
1 5000 10000 REM INITIALIZE
2 5000 14000 REM INSTRUCTIONS
3 5000 12000 REM DISPLAY SET ROOM
10 5000 18000 REM INPUT ROUTINE
20 50 NOT SPACE THEN
    V=IN$
40 50 V=0 THEN 10
45 PRINT:PRINT
50 50 ACC(0)=12 AND LEND(0)=1 THEN
    V=ASC(CHR$(LEN(V)-1)) AND ASC(CHR$(LEN(V)-1)) GOTO 50
60 50 LEND(0)=LEN(V) THEN
    A$=V
70 50 A$=CHR$(LEN(V)-1) AND LEND(0)=1
80 50 50 V=12 AND LEND(0)=1 THEN
    A$=CHR$(LEN(V)-1) GOTO 50
90 50 V=0 THEN
    MFLAG=0
95 50 V=0=14
100 50 V=1 OR 1020 THEN 10
110 50 50 50000 10100, 10200, 10300, 10400, 10500, 10600, 10700, 10800, 10900, 11000,
    11100, 11200, 11300, 11400, 11500, 11600, 11700, 11800, 11900, 12000, 12100, 12200,
    12300, 12400, 12500, 12600
120 50 NOT 50 THEN
    PRINT "I DON'T KNOW HOW TO DO THAT":G=1
125 50=11
    50 50 THEN
        INVERSE PRINT "IS THERE TIME JUST FOR ME?" NORMAL:PRINT:GOTO 50000
130 PRINT:GOTO 50
1400 50=" " SPACE=0:50=" " 50=" " MFLAG=1
1410 GET 50
    50 50=13 THEN
        RETURN
1420 50 ACC(0)=5 AND SPACE AND RIGHT(50)=0 THEN
    SPACE=0
1430 50 LEND(0)=5 AND 50=" " THEN 1410
1440 50 ACC(0)=5 AND LEND(0)=1 THEN
    MFLAG=ASC(CHR$(LEN(V)-1)):PRINT:PRINT:GOTO 1410
1450 50 50=" " AND NOT SPACE THEN
    V=ASC(CHR$(1)) GOTO 1400
1460 50 ACC(0)=12 OR ACC(0)=10 THEN 1410
1470 PRINT:G=1
1475 50=0=0
1480 GOTO 1400
1490 REM FOLLOWING ROUTINES ACT ON THE INPUT, OR IS KEYWORD FLAG
1500 50=0 RETURN
1510 50 50="GO" 50=" " THEN 53000
1520 50 50="GOAL DOOR" THEN
    PRINT "TOO SOLID TO EVEN TRY":RETURN
1530 50=0 RETURN
1540 50=0 RETURN
1550 50 V="TOP" AND MFLAG THEN 24000
1560 50=0 RETURN
1570 50 50=" " THEN
    50=1 GOTO 20000
1580 50 V="EARTH" AND MFLAG THEN 27000
1590 50=0 RETURN
1600 50 50="FINE BATTERIES" THEN
    PRINT "TRY THE GAME":RETURN
1610 50 V="FINE" THEN
    PRINT "I CAN'T HELP YOU":RETURN
1620 50=0 RETURN
1630 50 V="NOT" THEN 10000
1640 50 50="SIVE COUNT" AND L=5 THEN 43000
1650 50 50="SIVE TICKET" AND L=14 THEN 40000
1660 50=0 RETURN
1670 50 V="HELP" THEN
    PRINT
    "JUST KEEP MOVING AND EXAMINE THINGS, AND AVOID DANGEROUS PLACES."
    RETURN
1680 50=0 RETURN
1690 50 50="I" OR 50="IN" OR 50="INVENTORY" THEN 34000
1700 50=0 RETURN
11000 50 V="JUMP" THEN 54000
11100 50=0 RETURN
11200 50 V="KILL" THEN
    PRINT "THAT IS BEYOND MY POWER":RETURN
1130 50=0 RETURN
11200 50 50="LOOK" THEN 22000
11210 50 V="LOOK" AND MFLAG THEN 27000
11300 50=0 RETURN
11300 50 50="WAKE JARVIS" THEN 55000
11320 50=0 RETURN
11400 50 50=" " THEN
    50=1 GOTO 20000
11490 50=0 RETURN
11500 50 50="OPEN BEAM" THEN
    PRINT "THE BEAM SWITCHES JUST FELL":PRINT "OUT OF THE BACK":PRINT
    "THEY'RE ON THE GROUND":G=11=1 RETURN
11590 50=0 RETURN
```



Adventures in Videoland

```
11600 IF (WVR*PLAY) OR (WVR*PLACE) AND (WPLAS THEN 20000
11610 IF (WVR*PLAY) AND L=0 THEN 43000
11620 IF (WVR*PLAY) AND L=1 THEN 40000
11630 IF (WVR*PLUG BUTTON) OR (WVR*PRIZE BUTTON) AND L=2 THEN 50000
11640 (WVR) RETURN
11700 IF (WVR*SOFT) THEN
L=0
11710 (WVR) RETURN
11800 IF (WVR*READ BOOK) AND (CON(4)OR (CON(5)) THEN
PRINT "YOU NOW KNOW HOW TO READ A) PRINT "ANSWER FROM A MACHIN) GO=1
RETURN
11810 IF (WVR*READ TICKET) THEN
WVR=LOOK TICKET) GO=0 27000
11820 (WVR) RETURN
11900 IF (WVR*) THEN
G=3) GO=0 29000
11910 IF (WVR*BOAT) THEN 43000
11920 IF (WVR*BOAT TICKET) AND L=0 THEN 40000
11930 (WVR) RETURN
12000 IF (WVR*TAKE) AND (WPLAS THEN 25000
12010 IF (WVR*TURN KNOC OF WVR*TURN DIAL) AND L=0 THEN 50000
12020 (WVR) RETURN
12100 IF (WVR*USE GAMER) THEN 54000
12110 (WVR) RETURN
12200 IF (WVR*VISIT BARBER) THEN
PRINT "SHE DOESN'T WANT TO SEE YOU) RETURN
12210 (WVR) RETURN
12300 IF (WVR*) THEN
G=4) GO=0 20000
12310 IF (WVR*MOVE LOCKPORT) AND (CON(4)OR (CON(5)) THEN
WVR=MOVLOCKPORT) GO=0 40000
FOR I=1 TO 10000
WVR=1)
WVR=7) GO=0 40000 PRINT "IT FIRM HILL AND NEEDS A GOOD) PRINT
"DISCOUNT) GO=1) RETURN
12320 (WVR) RETURN
12400 (WVR) RETURN
12500 (WVR) RETURN
12600 FOR I=1 TO 5) FOR J=0 TO 9) FOR K=0 TO 9) INPUT OF 2 STOPS PROGRAM
24000 WVR= WVR+FOR I=0 TO 9) FOR J=0 TO 9) FOR K=0 TO 9)
12610 (WVR) WVR= WVR+I*100+J*10+K)
IF (WVR) THEN
PRINT "TO NEED A DIRECTION) RETURN
20000 WVR FROM WVR+CON(4)+DIRECTION+WVR MOVES INITIAL=PRESENT LOCATION
20010 WVR=CON(4)+WVR+J*10+K*10+D
20020 IF (WVR) THEN
PRINT "YOU CAN'T GO THAT WAY) RETURN
L=0
20030 IF (WVR*1) AND (WVR*LOOK) THEN
WVR=CON(4)
FOR I=1 TO 10000
WVR=CON(4)+I)
FOR I=1 TO 1000
NEXT I)
NEXT I)
NEXT I)
20040 IF (WVR*1) THEN
WVR=CON(4)
FOR I=1 TO 1000
NEXT I)
NEXT I)
WVR=CON(4)
FOR I=1 TO 1000
NEXT I)
20050 (WVR) WVR=CON(4) GO=0 40000
PRINT "YOU ARE IN "
20060 PRINT WVR) PRINT WVR) PRINT "THIS LOCATION CONTAINS " THE FIRM
20070 FOR I=1 TO 100
20080 IF (CON(4) THEN
PRINT WVR+I) F=1)
20090 NEXT I)
IF (WVR) THEN
PRINT "METHOD"
20060 PRINT "VISIBLE OBJECT "
20070 FOR I=1 TO 4
20080 IF (WVR+CON(4)+I) THEN
PRINT WVR+I) " THE FIRM"
20090 NEXT I)
IF (WVR) THEN
PRINT "DON'T EXIST"
20090 PRINT)
IF L=0 THEN 40000
20095 IF L=0 THEN 47000
20100 IF L=1 THEN 47000
20110 IF L=2 THEN
PRINT)
"YOU FOLLOW A WINDING PATH. FINALLY RETURNING TO FAMILIAR GROUND"
L=1) GO=0 20000
20095 IF L=0 THEN 49000
20100 RETURN
24000 F=4) PRINT "YOU ARE CARRYING"
FOR I=1 TO 10
```



Adventures in Videoland

```

24010 IF OBJ(1)=THEM
24020 PRINT OBJ(1) P1=
24030 NEXT I
24040 IF NOT F1 THEN
24050 PRINT "NOTHING"
24060 RETURN
24070 F1=0
24080 FOR I=1 TO 10
24090 IF INOBJ(1) AND OBJ(1)=THEM
24100 PRINT "YOU ALREADY HAVE THE "I" RETURN
24110 IF INOBJ(1) OR INOBJ(1) OR INOBJ(1) AND OBJ(1)=THEM
24120 OBJ(1)=PRINT OBJ(1) "SAYS P1="
24130 IF INOBJ(1) THEN
24140 P1=
24150 NEXT I
24160 IF F1=0 AND F2=0 AND INOBJ(1) AND INOBJ(1) THEN
24170 PRINT "I CAN'T SEE THE "I" RETURN
24180 IF F1=0 AND F2=0 THEN
24190 PRINT "THERE IS NOTHING HERE I CAN TAKE."
24200 IF F1=0 AND F2=0 THEN
24210 PRINT "I DON'T SEE IT HERE."
24220 RETURN
24230 F1=0
24240 FOR I=1 TO 10
24250 IF INOBJ(1) OR INOBJ(1) OR INOBJ(1) AND OBJ(1)=THEM
24260 OBJ(1)=P1
24270 NEXT I
24280 IF NOT F1 THEN
24290 PRINT "YOU CAN'T SEE WHAT YOU AREN'T CARRYING" RETURN
24300 PRINT "OK" RETURN
24310 F1=0
24320 FOR I=1 TO 10
24330 IF OBJ(1)=THEM OR OBJ(1)=L AND OBJ(1)=THEM
24340 F1=0 PRINT OBJ(1)
24350 IF OBJ(1)=THEM
24360 PRINT "I SEE NOTHING IMPORTANT." RETURN
24370 IF OBJ(1)=L OR OBJ(1)=R AND OBJ(1)=THEM THEN
24380 F1=0 PRINT F1(1)
24390 IF OBJ(1)=THEM
24400 PRINT "NOTHING EXTRAORDINARY HERE" RETURN
24410 IF F1 THEN
24420 RETURN
24430 NEXT I
24440 PRINT "I CAN'T DESCRIBE THAT"
24450 RETURN
24460 FOR I=1 TO 10
24470 IF INOBJ(1) OR OBJ(1)=THEM
24480 NEXT I
24490 PRINT "YOU AREN'T CARRYING THE "I" RETURN
24500 F1=0
24510 GOSUB 1000
24520 OBJ=
24530 PRINT
24540 IF NOT OBJ THEN GOTO
24550 IF NOT (I=1 AND OBJ=L) OR THEN
24560 PRINT "I CAN'T DO THAT" RETURN
24570 IF INOBJ(1) OR OBJ(1)=L AND OBJ(1)=THEM
24580 NEXT I
24590 PRINT "OK"
24600 IF INOBJ(1) OR OBJ(1)=L AND OBJ(1)=THEM
24610 PRINT "I CAN'T DO THAT" RETURN
24620 IF INOBJ(1) OR OBJ(1)=L AND OBJ(1)=THEM
24630 NEXT I
24640 PRINT "OK"
24650 IF INOBJ(1) OR OBJ(1)=L AND OBJ(1)=THEM
24660 NEXT I
24670 RETURN
24680 DIM OBJ(12) OBJ(12)=OBJ(12) OBJ(12)=OBJ(12) OBJ(12)=OBJ(12) OBJ(12)=OBJ(12) OBJ(12)=OBJ(12)
24690 OBJ(12)=THEM OBJ(12)=OBJ(12) THE FIRST AID STATION OBJ(12)=THE ROOMS
24700 OBJ(12)=THE ROOMS OBJ(12)=THE RESTAURANT OBJ(12)=THE SHOOTING GALLERY
24710 OBJ(12)=THE RECEPTION ROOM OBJ(12)=THE BULLY BRICKS THE OBJ(12)
24720 THE TOP OF THE HILL THE DOWNER OBJ(12)=THE CLOSET
24730 THE SHOOTING GALLERY OBJ(12)=THE OBSERVATION TOWER OBJ(12)
24740 THE CHANGING ROOMS OBJ(12)=THE STORAGE ROOMS OBJ(12)=THE SMALL BRICKS OBJ(12)
24750 THE GARDEN OBJ(12)=THE WOODEN TUNNEL OBJ(12)
24760 THE GARDEN TUNNEL
24770 OBJ(12)=THE OBJ(12)=THE OBJ(12)=THE OBJ(12)=THE OBJ(12)=THE
24780 OBJ(12)=THE OBJ(12)=THE OBJ(12)=THE OBJ(12)=THE
24790 OBJ(12)=THE OBJ(12)=THE OBJ(12)=THE OBJ(12)=THE
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24850 OBJ(12)=THE OBJ(12)=THE OBJ(12)=THE OBJ(12)=THE

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Adventures in Videoland

```
30000 DIR1:="NORTH" DIR2:="SOUTH" DIR3:="EAST" DIR4:="WEST"
30001 RW:=""
30002 STRETCHES TO THE EAST AND WEST. A REDHAWK IS TO THE NORTH"
30003 RW:=""
30004 "CONTAINS STRANGE EQUIPMENT, LIGHTS FLASH FROM AN ELECTRONIC BOX"
30005 RW:=""
30006 "AN OLD STATION IS TO THE NORTH. THE SOUND OF RAFFIRE COMES FROM A SH
OUTING GALLERY TO THE SOUTH."
30007 RW:=""
30008 "FROM A TENT TO THE SOUTH YOU HEAR EXOTIC MUSIC"
30009 RW:=""
30010 "THE ROOM IS CROAKED BUT YOU SEE AN UNPITYABLE IN THE CORNER"
30011 RW:=""
30012 "THE SIGN READS "3 SHOTS FOR 25 CENTS"
30013 RW:=""
30014 "THERE ARE DOORS TO THE NORTH AND SOUTH. THE NORTHERN DOOR IS OPEN. YOU C
AN HEAR THE ROLLER COASTER."
30015 RW:=""
30016 "THE STEPS ARE LOUD AT YOU"
30017 RW:=""
30018 "DANGEROUS PLACE TO BE."
30019 RW:=""
30020 RW:=""
30021 "THERE IS A DOOR LEADING TO A SMALL ROOM TO THE SOUTH"
30022 RW:=""
30023 "WELL, YOU CAN SEE THE WHOLE CARNIVAL. THE TOP OF THE ROLLER COASTER IS
IN SIGHT."
30024 RW:=""
30025 "THE PASSAGE LEADS NORTH TO THE TOP OF THE ROLLER COASTER. THE NOISE IS
RAISE LOUD"
30026 RW:=""
30027 "THE DOOR IS LOCKED BEHIND YOU BUT THERE'S A WINDOW TO THE WEST"
30028 RW:=""
30029 RW:=""
30030 "THE ROOM IS LITTERED WITH FRAGMENTS OF ELECTRONIC PARTS. BUT HOW OF IT
IS UNRECOVERABLE. A BOARD BLOOD YOUR PRINT"
30031 RW:=""
30032 "THE SIGN READS "30 CENTS A SMALL WINNER'S CHOICE."
30033 RW:=""
30034 "THE PASSAGE LEADS SOUTH TO THE TOP OF THE OBSERVATION TOWER"
30035 RW:=""
30036 RW:=""
30037 "THE SIGN READS "30 CENTS A SMALL WINNER'S CHOICE"
30038 RW:=""
30039 "IT CONTAINS EVERYTHING NEEDED FOR SMALL ELECTRONIC REPAIRS"
30040 RW:=""
30041 "THE TITLE IS "WORLD FREQUENTLY APPEARING TECHNOLOGY CORP"
30042 RW:=""
30043 "IT IS VERY STRANGE"
30044 RW:=""
30045 "THESE ARE PLUFFY"
30046 RW:=""
30047 "WORLD-FREQUENTLY APPEARING TECHNOLOGY CORP"
30048 RW:=""
30049 "WHEN YOU PUSH THE BUTTON ON ITS BACK, IT SAYS "I LOVE YOU"
30050 RW:=""
30051 RW:=""
30052 "IT SAYS "GOOD FOR A FREE GAME AT THE BALL TONS. COUNTRY OF CREATIVE
COMPETING. THE #1 MANAGEMENT OF SOFTWARE AND APPLICATIONS."
30053 RW:=""
30054 RW:=""
30055 "THE SIGN READS "30 CENTS"
30056 RW:=""
30057 "IT IS TIGHTLY ATTACHED TO THE TABLE. THERE ARE KNOBS AND A BUTTON ON IT"
30058 RW:=""
30059 RW:=""
30060 RW:=""
30061 RW:=""
30062 RW:=""
30063 RW:=""
30064 RW:=""
30065 RW:=""
30066 RW:=""
30067 RW:=""
30068 RW:=""
30069 RW:=""
30070 RW:=""
30071 RW:=""
30072 RW:=""
30073 RW:=""
30074 RW:=""
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30112 RW:=""
30113 RW:=""
30114 RW:=""
30115 RW:=""
30116 RW:=""
30117 RW:=""
30118 RW:=""
30119 RW:=""
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Adventures in Videoland



```
34000 PRINT "BY GIVING THE RIGHT COMMAND, YOU CAN "
34010 PRINT "MOVE, EXAMINE OBJECTS, AND PERFORM "
34020 PRINT "VARIOUS ACTIONS"
34030 PRINT "I (ASBESTOS) AND (ASBESTOS) COMMANDS SUCH AS"
34040 PRINT "GO, GET, OPEN, SHUT, ETC."
34050 PRINT "YOU CAN SIMPLY ENTER "
34060 PRINT "OR OTHER SITUATIONS, I WILL PROGRAM YOUR"
34070 PRINT "WITH A CHOICE OF ACTIONS"
34080 PRINT "BUT SUCCESS OR FAILURE IS UP TO YOU"
34090 PRINT "INVESTIGATE"
34100 PRINT "PRESS ANY KEY TO BEGIN, ANY LACK OF"
34110 PRINT "FOR J=1 TO 100000
34120 FOR I=1 TO 10000
34130 IF (I=1) THEN
34140 FOR J=1 TO 10000
34150 NEXT J
34160 FOR J=1 TO 1000
34170 NEXT J
34180 RETURN
34190 PRINT "A GUNNER APPROACHED AND ASKED IF YOU"
34200 PRINT "WOULD LIKE A SHOT"
34210 PRINT "SINCE YOU MISSED LAST TIME, YOU"
34220 PRINT "WANT TO TRY"
34230 PRINT "DO YOU WANT TO SHOOT"
34240 PRINT "IF YES"
34250 PRINT "PLEASE ANSWER YES OR NO"
34260 PRINT "IF NO"
34270 PRINT "THE WAITER CALLED YOU A STUPID"
34280 PRINT "AND THREW YOU OUT"
34290 PRINT "YOU ARE SERVED A DELICIOUS MEAL"
34300 PRINT "UNFORTUNATELY, THE SERVICE IS"
34310 PRINT "SLOW"
34320 PRINT "THE BOMB WENT OFF AND THE BOMBER ESCAPED"
34330 PRINT "FOR J=1 TO 10000
34340 NEXT J
34350 PRINT "THE MAN BEHIND THE COUNTER TELLS"
34360 PRINT "IF YOU WANT TO PLAY THE GAME"
34370 PRINT "YOU HAVE TO BEAT THE BOSS"
34380 PRINT "FOR J=1 TO 10000
34390 NEXT J
34400 PRINT "THE BOSS SHOOTING"
34410 PRINT "A PREDATOR LOOKS OF THE BEAR AND"
34420 PRINT "APPEARED TO SIMPLE STUFFED WITH"
34430 PRINT "HE SHAKED HIS HEAD AND LEAVED"
34440 RETURN
34450 PRINT "THE SAID YOU CAN'T COME IN UNLESS YOU HAVE A PRESENT FOR HER"
34460 PRINT "SHE PLUSHES YOU OUT"
34470 PRINT "YOU THINK ONE PRESENT ENTITLED YOU TO COME IN HERE"
34480 PRINT "SHE TURNS HER BACK AND LEAVES YOU"
34490 PRINT "SHE LETS YOU IN AND EYES THE BEAR"
34500 PRINT "DO YOU WANT TO GIVE IT TO HER"
34510 PRINT "IF YES"
34520 PRINT "SHE THANKS YOU OUT"
34530 PRINT "SHE UNLOCKS THE DOOR TO THE SOUTH"
34540 RETURN
34550 PRINT "SHE SAID, 'EMPLOYEES ONLY' AND THROWS YOU OUT"
34560 PRINT "SHE GIVES YOU UNIFORM AND LETS YOU IN"
34570 RETURN
34580 PRINT "YOU CAN'T AFFORD THE GAME"
34590 PRINT "YOU HAND OVER THE TICKET AND THROW THE BALL"
34600 PRINT "IT'S A MESS"
34610 PRINT "YOU HAVE A CHOICE OF FOUR PRIZES"
34620 PRINT "A LAMP, TOWEL, RING, OR POSTER"
34630 PRINT "DO YOU WANT"
34640 PRINT "IF YES"
34650 PRINT "IT'S YOURS"
34660 PRINT "SHE THANKS YOU"
34670 PRINT "FOR J=1 TO 10000
34680 NEXT J
34690 PRINT "PLEASE ANSWER WITH LAMP, RING OR TOWEL"
34700 PRINT
```

Adventures in Videoland

```
49990 INVERSE! SPEED=200! PRINT "IF YOU LOOK BACK, YOU'LL NOTICE!"! PRINT  
"A CAR SPEEDING TOWARD YOU!"! GOSUB 3000000000000  
50010 NORMAL! SPEED=200! GOSUB 40000! GOTO 50030  
50000 MOVE: VTAB 10: PRINT "IF 10 ONE YEAR LATER!"! PRINT  
"THE ROLLER COASTER HAS BEEN REPAIRED!"! PRINT  
"THE SMOOKER PLAYS TO OLD(FOR 10) AGAIN!"! PRINT  
"WOULD YOU LIKE TO TRY TO SAVE IT?"  
50010 GOSUB 10000! PRINT  
50020 IF YES="Y" OR YES="Y" THEN  
"GOSUB 30000! GOTO 20000  
50030 IF YES="Y" OR YES="Y" NOT THEN  
PRINT "YES OR NO?"! GOSUB 20000! PRINT! GOTO 50020  
50040 END  
50050 PRINT "AH OK. I THINK THAT WAS A RESTAKE!"! MOVE$="BETTER!"! GOSUB  
40000! PRINT "YOU GET OFF THE CAR!"  
FOR I=1 TO 20000  
NEXT I  
GOTO 50000  
50060 IF L<112 THEN  
PRINT "YOU AREN'T IN LINE OF SIGHT WITH!"! PRINT "THE ROLLER COASTER!"  
RETURN  
50070 IF ON(12) THEN  
PRINT "YOU DON'T HAVE A JAMMER!"! RETURN  
50080 IF NOT B THEN  
PRINT "IT DOESN'T WORK, BECAUSE IT NEEDS BATTERIES!"! RETURN  
50090 MOVE$="BETTER!"! GOSUB 40000  
FOR I=0 TO 50000  
NEXT I  
MOVE$="Y"!  
GOSUB 40000  
50100 MOVE: VTAB 10: HTAB 10: INVERSE! SPEED=200! PRINT "CONGRATULATIONS!"  
NORMAL! ROLLER: HTAB 4! PRINT "YOU SAVED THE ROLLER COASTER!"! SPEED=200!  
END  
50200 IF NOT B THEN  
PRINT "YOU DON'T KNOW HOW!"! RETURN  
50210 IF ON(12)<10 THEN  
PRINT "SOMETHING VITAL IS MISSING!"! RETURN  
50220 IF ON(12)<10 THEN  
PRINT "YOU DON'T HAVE THE REQUIRED TOOLS!"! RETURN  
50230 PRINT "CONGRATULATIONS, YOU NOW HAVE A!"! PRINT "JAMMER!"! ON(12)<10!  
ON(12)<10! RETURN
```

Adventure Framework

This is not a playable game as it is a framework handling common Adventure features.

```
1 GOSUB 50000:FOR I=1 TO 128  
2 TEXT:HOME  
3 GOSUB 10000  
4 HTAB 1  
10 GOSUB 1000  
20 IF NOT SPACE THEN  
MOVE$  
40 IF YES="Y" THEN 10  
45 PRINT:PRINT  
50 IF ASCII(POS) AND ASCII(POS) THEN  
MOVE$=LEFT$(MOVE$,(ASCII(POS)-1):ASCII(POS)=LEFT$(MOVE$,(ASCII(POS)-1)):GOTO 50  
60 IF LEFT$(MOVE$,(ASCII(POS)-1))=RIGHT$(MOVE$,(ASCII(POS)-1)) THEN  
MOVE$=MOVE$+(ASCII(POS)-1)  
70 MOVE$=LEFT$(MOVE$,(ASCII(POS)-1))+LEFT$(MOVE$,(ASCII(POS)-1))  
80 IF ASCII(POS)=32 AND ASCII(POS) THEN  
MOVE$=RIGHT$(MOVE$,(ASCII(POS)-1)):GOTO 50  
90 IF YES="Y" THEN  
MOVE$=MOVE$+(ASCII(POS)-1)  
100 IF YES="Y" OR YES="Y" THEN 10  
110 ON A GOSUB 10100,10200,10300,10400,10500,10600,10700,10800,10900,11000,11100,  
11200,11300,11400,11500,11600,11700,11800,11900,12000,12100,12200,  
12300,12400,12500,12600  
120 PRINT  
120 PRINT:GOTO 10  
1000 YES="Y" SPACE=0: YES="Y" MOVE$+MOVE$  
1010 GET:BA  
IF ASCII(BA)=13 THEN  
RETURN  
1020 IF ASCII(BA)=8 AND SPACE AND RIGHT$(MOVE$,(ASCII(POS)-1)) THEN  
SPACE=0  
1030 IF ASCII(BA)=8 AND YES="Y" THEN 1010  
1040 IF ASCII(BA)=8 AND ASCII(POS) THEN  
ASCII(POS)=LEFT$(ASCII(POS)-1):PRINT:BA=" " THEN:GOTO 1010  
1050 IF YES="Y" AND NOT SPACE THEN  
MOVE$+MOVE$+MOVE$:GOTO 1010  
1060 IF ASCII(ASCII(POS) OR ASCII(ASCII(POS))) THEN 1010  
1070 PRINT:BA  
GOTO MOVE$+BA  
1080 GOTO 1010  
1090 RETURN  
10000 RETURN  
10100 RETURN  
10200 RETURN  
10300 RETURN
```



Adventures in Videoland



```

10480 IF SW="OROP" AND HFLAG THEN 20880
10490 RETURN
10500 IF SW="I" THEN
    GOTO 20500
10501 IF SW="EAGRME" AND HFLAG THEN 27000
10510 RETURN
10520 RETURN
10530 IF SW="B" THEN 19000
10540 RETURN
10550 RETURN
10560 IF SW="I" OR SW="D" OR SW="IMMEDI" THEN 24800
10570 RETURN
10580 RETURN
10590 RETURN
10600 IF SW="L" THEN 20880
10610 IF SW="L" AND HFLAG THEN 27000
10620 RETURN
10630 RETURN
10640 IF SW="T" THEN
    GOTO 20500
10650 RETURN
10660 RETURN
10670 RETURN
10680 RETURN
10690 IF SW="I" THEN
    GOTO 20500
10700 RETURN
10710 IF SW="T" AND HFLAG THEN 20880
10720 RETURN
10730 RETURN
10740 RETURN
10750 RETURN
10760 IF SW="T" THEN
    GOTO 20500
10770 RETURN
10780 RETURN
10790 RETURN
10800 POP STOP: REM DEBRASSING AND INPUT OF 2 STOPS PROGRAM
10810 REM PARSER FOR GO DIRECTION
10810 (D=DIR1): (D=DIR2): (D=DIR3): (D=DIR4)
    IF NOT D THEN
        PRINT "I NEED A DIRECTION" RETURN
10820 REM REM: SUBROUTINE DIRECTOR: ROOM: FROM: (INITIAL-PRESENT LOCATION)
10830 REM: (DIRECTION): (D=DIR)
10840 IF NOT D THEN
    PRINT "YOU CAN'T GO THAT WAY" RETURN
10850 L=0
10860 REM LOOK ROUTINE
10870 PRINT "YOU ARE IN "
10880 PRINT BRN1: PRINT BRN2: PRINT "THE ROOM CONTAINS " F1=0
10890 FOR I=0 TO 4
    IF OBJ(I) THEN
        PRINT OBJ(I) F1=1
10900 NEXT I
    IF NOT F1 THEN
        PRINT "NOTHING"
10910 PRINT "VISIBLE EXITS: "
10920 FOR I=1 TO 4
    IF DIR(DIR1): DIR(DIR2) THEN
        PRINT DIR(DIR) " " F1=0
10930 NEXT I
    IF NOT F1 THEN
        PRINT "DON'T EXIST"
10940 RETURN
10950 F1=0: PRINT "YOU ARE CARRYING:"
10960 FOR I=0 TO 4
    IF OBJ(I) THEN
        PRINT OBJ(I) F1=1
10970 NEXT I
    IF NOT F1 THEN
        PRINT "NOTHING"
10980 RETURN
10990 F1=0: F2=0
    FOR I=1 TO 80
    IF SW=OBJ(I) AND OBJ(I) THEN
        PRINT "YOU CAN'T MOVE THE " OBJ(I) RETURN
11010 IF SW=OBJ(I) OR SW="ALL" OR SW="EVERYTHING" AND OBJ(I)=0 THEN
        OBJ(I) PRINT OBJ(I) " " F1=1
11020 IF SW=OBJ(I) THEN
        F2=1
11030 NEXT I
11040 IF F1=0 AND F2=0 AND SW="ALL" AND SW="EVERYTHING" THEN
        PRINT "I CAN'T TAKE THE " SW RETURN
11050 IF F1=0 AND F2=0 THEN
        PRINT "THERE IS NOTHING HERE I CAN TAKE."
11060 IF F1=0 AND F2=1 THEN
        PRINT "I DON'T SEE IT HERE."
11070 RETURN
11080 F1=0
    FOR I=1 TO 80

```

Adventures in Videoland

```

26250 IF (OBJ11=448 OR OBJ11=449) AND (OBJ11=50) THEN
    OBJ11=51
26260 NEXT I
26270 IF NOT F1 THEN
    PRINT "YOU CAN'T DROP WHAT YOU WEREN'T CARRYING." RETURN
26280 PRINT "OK." RETURN
26290 F1=0
    FOR J=1 TO 80
26300 IF (OBJ11=50 OR OBJ11=51) AND (OBJ11=448) THEN
    F=1: PRINT OBJ11:
    IF OBJ11=77 THEN
    PRINT "I SEE NOTHING IMPORTANT." RETURN
26310 IF (FL1=1) OR (FL1=2) AND (OBJ11=448) THEN
    F=1: PRINT F=1:
    IF F=1=77 THEN
    PRINT "NOTHING EXTRAORDINARY HERE." RETURN
26320 IF F1 THEN
    RETURN
26330 NEXT I
26340 PRINT "I CAN'T DESCRIBE WHAT ISN'T HERE."
26350 RETURN
26360 DIM OBJ(25), OBJ1(25), OBJ2(25), OBJ3(25), OBJ4(25), OBJ5(25), OBJ6(25), FL(25), F=1(25)
26370 OBJ12="A DIMLY LIT HALL": OBJ212="A DARK HALL": OBJ312="
    "A VERY DARK HALL": OBJ412="A MOIST HALL": OBJ512="
    "THE DARKEST HALL OF ALL": OBJ612="A PITCH BLACK HALL"
26380 OBJ113="THE CELLAR": OBJ213="THE ATTIC": OBJ313="THE BEDROOM": OBJ413="
    "THE LIVING ROOM": OBJ513="THE GUEST STAIRS": OBJ613="A TUNNEL"
26390 OBJ114="THE HALLWAY"
26400 OBJ115="A SWANBOAT": OBJ215="THE WINE CELLAR": OBJ315="
    "THE BILLIARDS ROOM": OBJ415="A TRUNK ROOM": OBJ515="A HALLWAY"
26410 OBJ116="A BALCONY": OBJ216="THE PORCH": OBJ316="THE LIBRARY": OBJ416="
    "THE BLUE ROOM": OBJ516="THE GREEN ROOM": OBJ616="THE PINK ROOM"
26420 OBJ117="THE YELLOW ROOM": OBJ217="THE ROSE ROOM"
26430 OBJ118="ROOM": OBJ218="ROOM": OBJ318="ROOM": OBJ418="ROOM": OBJ518="ROOM": OBJ618="ROOM"
26440 OBJ119="ROOM": OBJ219="ROOM": OBJ319="ROOM": OBJ419="ROOM": OBJ519="ROOM": OBJ619="ROOM"
26450 OBJ120="ROOM": OBJ220="ROOM": OBJ320="ROOM": OBJ420="ROOM": OBJ520="ROOM": OBJ620="ROOM"
26460 OBJ121="ROOM": OBJ221="ROOM": OBJ321="ROOM": OBJ421="ROOM": OBJ521="ROOM": OBJ621="ROOM"
26470 OBJ122="ROOM": OBJ222="ROOM": OBJ322="ROOM": OBJ422="ROOM": OBJ522="ROOM": OBJ622="ROOM"
26480 OBJ123="ROOM": OBJ223="ROOM": OBJ323="ROOM": OBJ423="ROOM": OBJ523="ROOM": OBJ623="ROOM"
26490 OBJ124="ROOM": OBJ224="ROOM": OBJ324="ROOM": OBJ424="ROOM": OBJ524="ROOM": OBJ624="ROOM"
26500 L=1: F=0
26510 OBJ11="NORTH": OBJ21="SOUTH": OBJ31="EAST": OBJ41="WEST"
26520 OBJ12="WALL": OBJ212="DOOR"
26530 OBJ13="WALL": OBJ213="WALL": OBJ313="WALL": OBJ413="WALL": OBJ513="WALL": OBJ613="
    "WALL": OBJ114="CORNER": OBJ214="LETTER": OBJ314="RAIL": OBJ414="RAIL": OBJ514="
    "RAIL"
26540 OBJ115="WALL": OBJ215="CORNER": OBJ315="WALL": OBJ415="WALL": OBJ515="WALL": OBJ615="
    "WALL": OBJ116="FLOR": OBJ216="WALL": OBJ316="WALL"
26550 FOR I=1 TO 80
    OBJ1=I:
    NEXT I
26560 OBJ11="NORTH": OBJ21="SOUTH": OBJ31="EAST": OBJ41="WEST"
26570 OBJ112="SMALL, UNIFORM, TRIPLES TO THE FLOOR, SETTING EVERYTHING"
26580 OBJ113="THERE IS AN OOD OF DOGS HERE"
26590 OBJ114="PLAIN CORNELLS": OBJ214="IT IS BRIGHT": OBJ314="
    "IT APPEARS TO BE SOME PAGE": OBJ414="IT IS EMPTY"
26600 OBJ115="WHITE WALL": OBJ215="IT IS COLD AND WET": OBJ315="A WALL"
26610 OBJ116="JUST AN ORDINARY WALL": OBJ216="
26620 OBJ117="FLOR": FL=0
26630 RETURN

```





Helpful Tips For Playing Adventure Games

If an Adventure is getting you very frustrated, the best thing to do is shut down the machine and try again a little bit later. If you are determined to get by the frustrating obstacle, call up a friend. He/she might have some ideas which you would never think of. If no friends are available, apply as much common sense as possible. If this fails as well, try obscure reasoning and make irrational decisions.

Watch out for any words in "quotes" or with "stars" around them. These usually are clues. Any clue can be figured out if enough thought is put into it. Try reversing all of the letters of a particular clue. It can transform something as obscure as ARDADAC ARBA into something meaningful like "ABRA CADABRA."

Remember that not every obstacle can be overcome! A window that cannot be opened or broken is probably just there to confuse the player. So, if it seems impossible to get by, it probably is.

Another reason why you may not be able to get by an obstacle is that you do not have the necessary resources! For instance, to break a window, you may need a hammer! If you have never encountered the hammer before, you may not even know that it exists, and you may spend more time trying to get by it without the hammer than you will spend finding the hammer!

Do not be afraid to try things that are seemingly stupid! In many cases a command that seems dumb turns out to be the way to overcome the obstacle.

Periodically (every 15 minutes or so) save your game out to tape or disk with the command "SAVE" or "SAVE GAME." This will insure that in the case of a fatal accident you only lose about 15 minutes of adventuring. Make absolutely sure that you save your game before trying things with unknown results, such as drinking strange bubbling liquids or jumping off a cliff.



BIG COMPUTER GAMES FROM CREATIVE COMPUTING

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Third in the *Creative Computing* series of best-selling computer games books, *Big Computer Games* contains 12 challenging games for solo and group play—*Lost & Forgotten Island*, *Trucker*, *Dukedom*, *Cribbage*, *Star Merchant*, *Mu-Torere*, *Streets of the City*, *Eliza*, *Presidential Campaign*, *Monster Combat*, *Survival*, and *Rollercoaster*. Also included are sections on how to write your own adventure game and how to integrate action video with your computer games.

Program listings, sample runs, and descriptions are presented with each game, and all games are written in standard Microsoft Basic, which is adaptable to most micro-computers.

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